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ABSTRACT

Section 109(b) of the 1972 Federal Water Pollution Control Act Amendments authorized funding for the construction of statewide water treatment training facilities. Described in this report is work conducted by Southwest Research Institute (SwRI) to: (1) aid in developing updated 109(b) Guidance Documents; (2) characterize and evaluate existing 109(b) centers; and (3) coordinate a workshop for representatives of 109(b) statewide training centers. Chapters I through V discuss background information on 109(b) legislation, implementation, Guidance Documents, and programs. Programs at existing or planned 109(b) facilities are described in Chapter VI, while Chapter VII summarizes the two and one-half day "109(b) Guidance Development Workshop" proceedings. Presented in the appendix are relevant government documents, SwRI's 109(b) questionnaire, and a list of contact persons. (WB)

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ED195407

November 1980

FINAL REPORT

109(b) STATE TRAINING CENTER FACILITY ASSESSMENT, PROGRAM EVALUATION, AND GUIDE DEVELOPMENT

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SE 033 390

FINAL REPORT

109(b) STATE TRAINING CENTER FACILITY ASSESSMENT, PROGRAM EVALUATION, AND GUIDE DEVELOPMENT

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PREFACE

This document is a report by Southwest Research Institute (SwRI) documenting work performed under grant T-901016 from the National Training and Operational Technology Center (NTOTC) of the U.S. Environmental Protection Agency. The grant, entitled "Assessment, Evaluation, and Workshop on the 109(b) State Training Center Program," had the following goals:

(1) To aid in the development of an up-to-date set of 109(b) Guidance Documents;

(2) To produce a Document characterizing existing 109(b) centers, including a description of various methods for evaluating the effectiveness of a given center, and

(3) To conduct and report on a 109(b) Workshop in which representatives of existing 109(b) statewide training centers were asked to participate.

To accomplish these goals, SwRI first collected available published information on the 109(b) Program and centers, including the grant requests and narratives, from all available sources including the U.S. EPA. In order to gain "first-hand" knowledge of the existing and, in some cases, proposed 109(b) statewide training centers, SwRI asked the National Environmental Training Association (NETA) to develop a questionnaire to be utilized in the field data collection process (see Appendix B). Utilizing the finalized questionnaire, SwRI contacted all the known 109(b) centers, and the states of Illinois and California (with existing non-109(b) funded centers) and requested that the questionnaire be completed. In addition, SwRI personnel visited each of the facilities/centers in order to acquire "first-hand" information on the history of the facility/center relative to 109(b), its physical characteristics, objectives, organization, operation characteristics, and any problems which it may have encountered. The existing centers/facilities which were visited included those shown in Table 1. (New Mexico was scheduled, but could not be accommodated.) In addition to these sites, SwRI personnel visited Colorado, New England Regional, New Hampshire, Vermont, and New Jersey, which had 109(b) grant applications in the final processing stages. California, Illinois, and Indiana were visited by the grantees in order to collect information on ongoing non-Federally funded statewide training centers. Written information was collected from Texas, as well.

The information collected at the various sites, via the questionnaires and other personal contact, was summarized and used as a discussion document at the 109(b) Guidance Development Workshop in Cincinnati, Ohio, held in February 1980.

The Guidance Document Workshop assembled 13 knowledgeable individuals for a working session devoted to discussing the 109(b) process, its implications and mechanics, the organization of statewide training centers, and the view of the participants on wide-ranging though pertinent subjects. A Workshop summary is included in this document.

TABLE 1. EXISTING 109(b) CENTERS VISITED

State	City	Organization/Title
ARKANSAS	East Camden	Southern Arkansas University Technical Branch; Operator Training Center
FLORIDA	Gainesville	TREEO Center
GEORGIA	Carrollton	Georgia Water and Wastewater Institute
IOWA	Cedar Rapids	Waste and Wastewater Technology, Environmental Occupations Education Department
MISSOURI	Neosho	Water and Wastewater Technical School
OKLAHOMA	Midwest City	Environmental Studies Department
VIRGINIA	Richmond	Operator Training Center
DISTRICT OF COLUMBIA	Washington, D.C.	Department of Environmental Services
	PROPOSED 109(b) SITES VISITED	
COLORADO	Denver	Community College of Denver
NEW ENGLAND REGIONAL	South Portland, Maine	New England Regional Wastewater Institute
NEW JERSEY	Camden	Pilot Plant Training Center
NEW HAMPSHIRE	Concord	New Hampshire Water Supply and Pollution Control Commission
VERMONT	Montpelier/Rutland	Agency of Environmental Affairs

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SwRI could not have produced this report without the information provided by representatives of each 109(b) facility and other statewide training centers visited or queried during the course of this data collection and assimilation effort. To each of them goes a special thanks.

CHAPTER I

HISTORY OF 109(b) LEGISLATION

Section 109(b) of the 1972 Federal Water Pollution Control Act Amendments (FWPCA) authorized the allocation of up to $250,000 of a state's construction grant allocation to the construction of a state training facility (see Appendix A, Part 1, for copy). As early as November 1973, legal interpretation was circulated.[1] The interpretation of General Counsel attempted to clarify any ambiguities while providing both regional EPA employees and prospective applicants with an up-to-date understanding of the 109(b) program. The responsibility for the national monitoring of the 109(b) activities was assigned to the Office of Water Program Operations in Washington, D.C.

The formal application for a 109(b) grant had to be made by the Governor of a state (or his appointed representative) on the appropriate EPA forms(s). Of course, the applicant had to provide all pertinent information. A brief narrative for the grant review process was to include the following: (1) A description of the physical property to be constructed (including facility type, size, classroom/laboratory space, equipment, special features and site location), (2) types of occupations to be trained (including source of curricula/instructional materials, and instruction personnel), and (3) anticipated outputs (number and types of personnel trained as compared to statewide operator training and certification needs.)

In order to qualify, the state, through the Governor, had to certify that the training facility would be operated with budgeted funds appropriated by the state. Federal funds could be used for this purpose, but the continuing training program could not be structured to be dependent on the Federal funds.

Construction of the training facility could include any or all of the following: (1) classrooms, (2) laboratories, (3) libraries, or (4) a working wastewater plant which might be designed to produce unusual conditions for training purposes. A plant would remain obligated to comply with the applicable permit conditions imposed under the NPDES program only if discharge was to a receiving water body.

The inclusion of mobile training units in 109(b) funding requests was not allowed according to the 1973 interpretation of General Counsel. From the document: "Only such equipment or supplies as are necessary for startup would be eligible, under precedent established under the construction grant program. We question whether the purchase of mobile training units could be justified under any circumstances, however."[2].

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The Governor of a state had to certify that the group or groups of occupations to be trained were critical to Section 204(a)(4) of P.L. 29-500, and that training provided would enable the applicants under Title II of P.L. 92-500 to meet requirements explicit or implicit in the law.

The applicant had to show that the activities at the center would be accepted in whole or in part toward meeting the requirements of an operator's license should the state have a licensing or certification program. In order to assure that trainees receive maximum benefit, an official state review and evaluation procedure was to be a part of the application.

If a state was going to levy charges for attendance, the charges had to be referred to in the grant application only if they made up a part of the operating budget. Similarly, if more than one state was to use a facility, the collected fees had to be documented if they were to be a portion of the operating budget.

In 1972-1973, the EPA suggested that a 109(b) facility should be associated with a treatment plant whether it be new, expanded, or existing. The waste treatment facility did not have to be at a municipality, but could be associated with an "institute of higher learning."

In all cases, the 109(b) grant was expected to be processed through the state priority system. The utilization of 109(b) funds had to be addressed in the prioritization of projects to be funded from the current state allotments.

The General Counsel interpretation of November 1973 specifically stated that a state could not split funds into two or more separate grants at more than one location; similarly, the interpretation then was that two or more states could not combine funds.[3]

In May 1974, the Office of the Deputy Assistant Administrator for Water Program Operations produced and disseminated Program Guidance for the application and implementation of subsection 109(b) of the 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500).[4] This document will be referred to as "1974 Guidance" in subsequent discussions, and is found in Appendix A, Part 2.

The 1974 Guidance stated that the Governor of a state or his appointed representative should make the 109(b) application on the appropriate forms. The application was to include a brief narrative for the grant review process; certification by the Governor that the training facility would be operated with budgeted funds appropriated by the state; the construction priority was to be included; the training facility could include classrooms, laboratories, libraries, or a "working wastewater treatment plant;" a certification from the Governor that the group(s) to be trained are critical to Section 204(a)(4) of P.L. 92-500 and that training would enable applicants under Title II of P.L. 92-500 to meet requirements explicit or implicit in the law; and other elements.

The 1974 Guidance clarified the intent of the 109(b) law, but generally did not change the prior interpretation. One major change in interpretation involved the inclusion of mobile units as grant eligible equipment. Whereas in the 1973 General Counsel opinion mobile units were specifically excluded, in the 1974 Guidance the interpretation of the term "working wastewater treatment plant" was broadened to include a "mobile unit or units with complete laboratory facilities and a package plant, a simulation of such a plant, or a mathematical model of such a plant...."[5]

In late December of 1977, the Amendments to the Clean Water Act made significant changes in Section 109(b) which dealt with State Training Centers (see Appendix A, Part 3). The primary change was to increase the maximum federal grant from $250,000 to $500,000. These changes were discussed in new 109(b) Guidance dated October 23, 1978 (see Appendix A, Part 4). From 1972 to 1973 the EPA had looked upon 109(b) funding as a source for constructing a "bricks and mortar" structure which was usually tied in with a wastewater treatment facility. As a result of changes in the law in 1977, the "bricks and mortar" facilities were still encouraged, but in addition the following were allowed as acceptable project costs: (1) mobile training units; (2) classroom rental; (3) package plants, simulations of a plant, or a mathematical model of a plant; and (4) specialized instructors (defined as a professional and/or technical expert within the field or wastewater pollution control).

The elements which should be included in a 109(b) grant application are presented within the 1977 Amendments (see page 44063, Federal Register, Vol. 43, No. 188 - Wednesday, September 27, 1978) (see Appendix A, Part V). The EPA provided additional information on these suggested inclusions in its 109(b) grant application package on pages 2-4 of the October 23, 1978 Guidance document (see Appendix A, Part 4). Succinctly stated, the application for a 109(b) grant must include the following: (a) narrative statement concerning the suitability of the treatment works facility(ies) or eligible training program for training of maintenance personnel; (2) written commitment from a state agency to carry out the approved training; (3) if a facility is to be constructed or renovated - engineering report; (4) detailed training program outline including 1, 3, and 5 year projections; (5) assessment of training need indicating methods of determining need and including identification of trainees; (6) curriculum to be used; (7) type of delivery system; (8) all available resources; (9) budget breakdown of pertinent costs; and (10) relationship of proposed program to other state training programs or activities.

The 1978 Guidance made some clear, concise statements which affected the way that recipients responded to the grant requirements. In particular, on page 8 the statement, "...we do not believe that Sec. 109(b) funds can be utilized for the construction of just classrooms which would not be associated with or integrated with treatment works...(however)...lecture facilities could be included within Section 109(b) facilities which are 'additions to treatment works'" indicates that any 109(b) funds had to be spent on a facility which had close ties to a wastewater treatment plant.

The 1978 Guidance reaffirmed the ability, under the 1977 law, for a group of states to pool their funds, establishing a regional facility which would meet the training needs of the various participants. Utilizing this option, states would be allowed to split their funds, allocating some funds for a supplemental in-state facility and other funds for a regional facility out of state. In no event was the total grant within a state to exceed the new $500,000 ceiling, however.

Further clarification was provided relative to the use of the additional $250,000 which was added in 1977 to the initial $250,000 of the 1972 Act. States which had expended their own funds above the initial $250,000 could not receive a reimbursement for their spent funds. Existing or planned projects could be increased to the $500,000 ceiling. If a state could prove need for more than one site within the state, the additional site could be upgraded with 109(b) funds. In all cases, no more than $500,000 of 109(b) grant funds could be spent by the state on 109(b) facilities, either in or outside the state.

On page 44073 of the September 27, 1978 Federal Register, the following statement is found:

> "If assistance has been provided for the construction of a treatment works required to train and upgrade waste treatment personnel under 35.930-1(b) and 35.920-3(e) the grantee must operate the treatment works as a training facility for a period of at least 10 years after construction is completed."

This phrase was interpreted in the 1978 Guidance to mean that a state should provide a written commitment to continue the training of WWTP operation and maintenance personnel at the funded facility for a period of at least 10 years. This does not imply that the Federal funds will last for 10 years, but that the program which was partially dependent on the Federal funding will be continued at state/local expense for a decade. It is stated that equipment such as mobile units are to be utilized for their "useful life" which may be less than 10 years; of course, a state would be expected to continue statewide training even if a given mobile unit had aged to the point of retirement.

The 1978 Guidance declares that administrative costs within a statewide training program are not to be funded by 109(b) funds. According to the Guidance, the costs of operator training programs for which 109(b) funds can be utilized are limited to specialized instructors and instructional materials, classroom rentals, and mobile training units. Administrative costs are intended to be the responsibility of some source other than 109(b) funds (such as Section 106 funds).

In late 1979, the National Training and Operational Technology Center (NTOTC) in Cincinnati, Ohio, was given the responsibility for 109(b) program monitoring. At this time, the regional EPA offices are effectively following the 1978 Guidance as implemented by NTOTC. NTOTC has review responsibilities for the prospective 109(b) applications, but EPA regions are not required to follow NTOTC recommendations.

REFERENCES

1. 1973, Memorandum, Implementation of Subsection 109(b)-Construction of Training Facilities-FWPCA Amendments of 1972, Office of Enforcement and General Counsel.

2. *Ibid*. 1973.

3. *Ibid*. 1973.

4. 1974, Program Guidance for Application and Implementation of Subsection 109(b) of the 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500).

5. *Ibid*. 1973.

CHAPTER II

SUMMARY DESCRIPTION OF EXISTING 109(b) PROGRAM

In the spring of 1980, there were 14 states (including the District of Columbia) which had received 109(b) funds (see Figure 1), four states with pending applications (see Figure 2), and 12 states preparing applications (see Figure 3). The cities where 109(b) centers are located are shown in Figure 4. Figure 5 is a map showing the compiled "states" of 109(b).

Table 2 lists the states which have received grant approval and the amount of funding authorized to date, along with the requested sum and the type of facility to be established. Those states which received a grant prior to 1977 and are now applying for an amendment to acquire additional funding, are shown in Table 3. Of the total $26,000,000 in available 109(b) funding for the states and District of Columbia and Puerto Rico, only about 10 percent has been committed.

TABLE 3. STATES WHICH HAVE REQUESTED OR RECEIVED AMENDMENT OF ORIGINAL 109(b) FUNDING LEVELS

Arkansas	$250,000
Georgia	$250,000
Iowa	$250,000
Missouri	$250,000
Oklahoma	$250,000
Washington, D.C.	$250,000

The existing centers/facilities which have utilized 109(b) funds can be categorized on the basis of funding use as shown on Table 4. The placement of a given facility/center in a given category is based on the major expenditure of 109(b) funds by the facility.

Table 5 shows the summary description of the various existing and proposed facilities. A centralized training facility is generally one in which students are expected to travel to the facility with the majority of training located there. Only one centrally administrated satellite facility exists. It is the Virginia center in which administrative duties and some training is carried out at a central location, but the majority of the students attend classes at permanent regional sites within the state. A mobile training capability designation is assigned to a center which provides a significant, though not necessarily major, portion of its outreach training through the use of mobile units. When audiovisual training is a significant

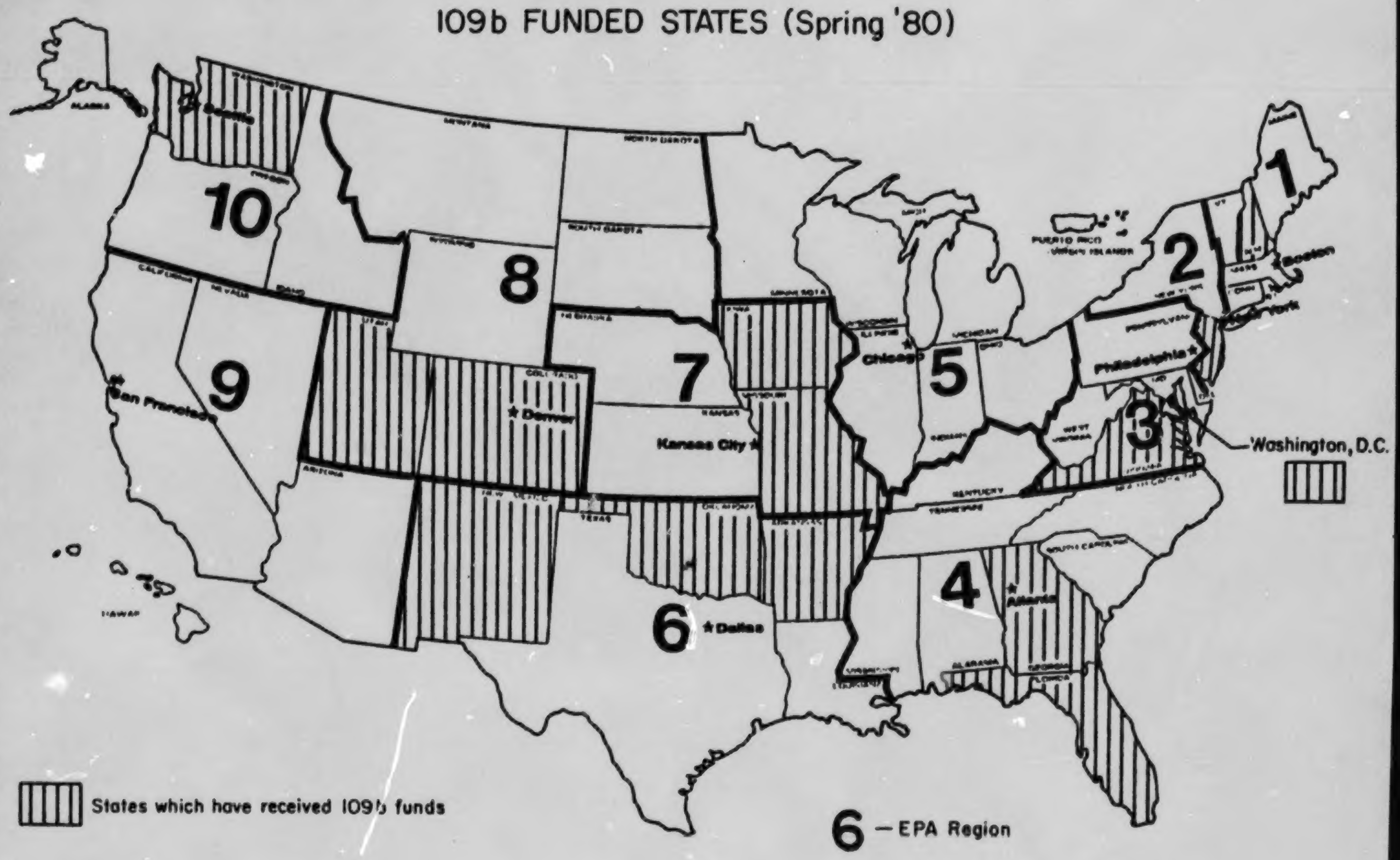

109b FUNDED STATES (Spring '80)
1
2
3
4
5
6
7
8
9
10
Seattle
San Francisco
Denver
Kansas City
Dallas
Chicago
Atlanta
Philadelphia
New York
Boston
Washington, D.C.
States which have received 109b funds
6 — EPA Region

FIGURE 1. 109(b) FUNDED STATES

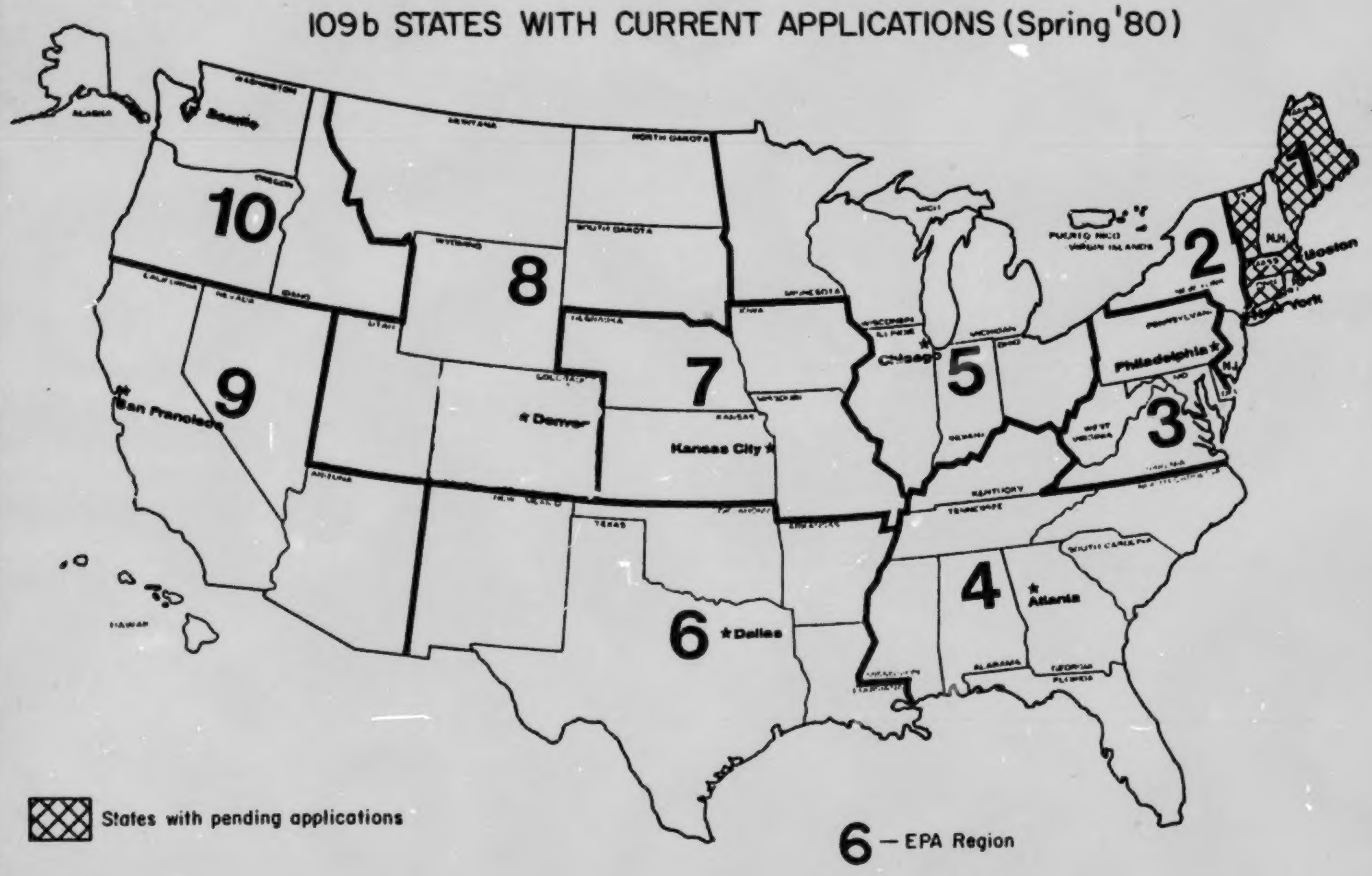
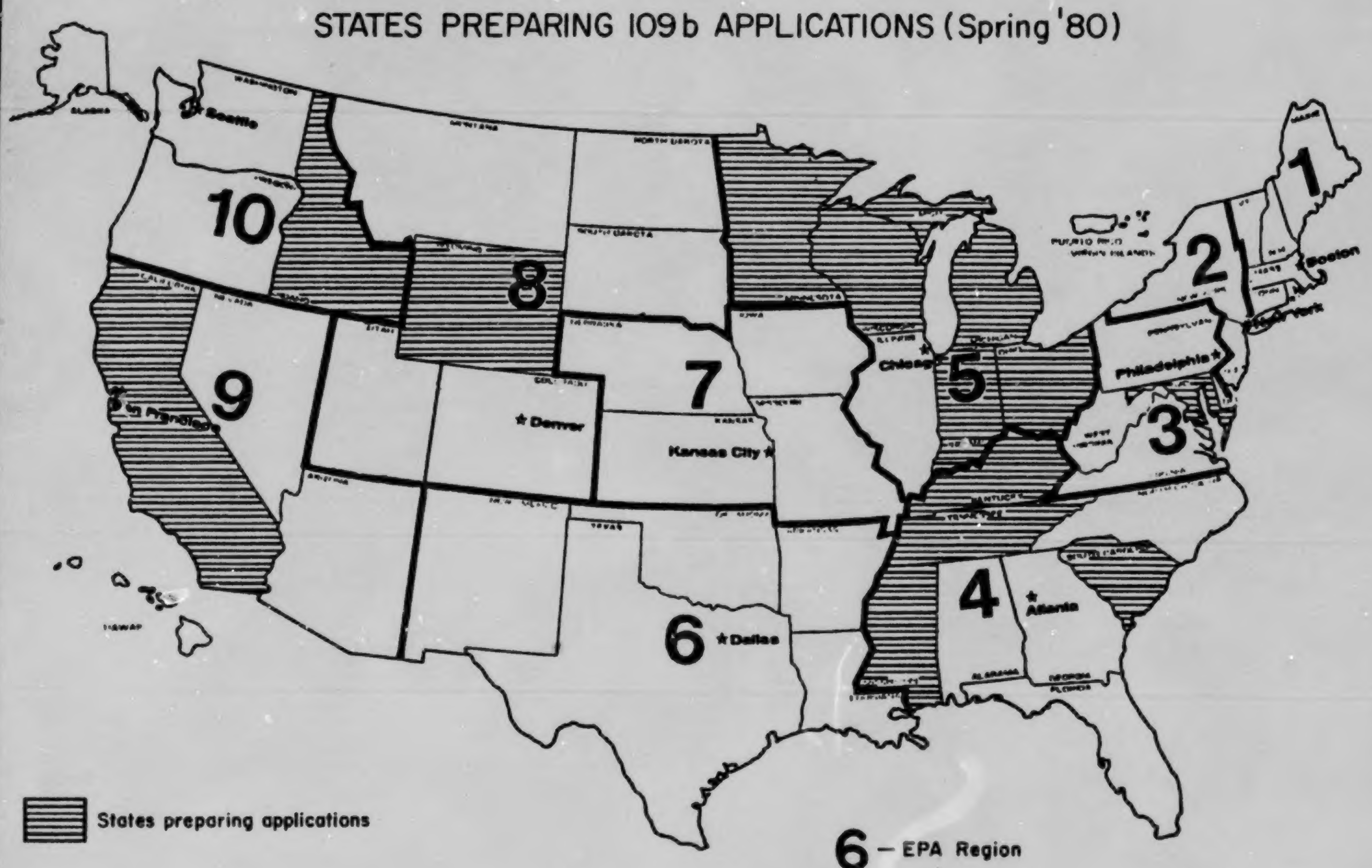

109b STATES WITH CURRENT APPLICATIONS (Spring '80)
10
Seattle
8
Denver
9
San Francisco
7
Kansas City
6
Dallas
5
Chicago
4
Atlanta
3
Philadelphia
2
New York
1
Boston
N.H.
N.J.
PUERTO RICO
VIRGIN ISLANDS
▨ States with pending applications
6 — EPA Region

FIGURE 2. 109(b) STATES WITH CURRENT APPLICATIONS


STATES PREPARING 109b APPLICATIONS (Spring '80)

10
Seattle
9
San Francisco
8
Denver
7
Kansas City
6
Dallas
5
Chicago
4
Atlanta
3
Philadelphia
2
New York
1
Boston
▤ States preparing applications
6 — EPA Region

FIGURE 3. STATES PREPARING 109(b) APPLICATIONS

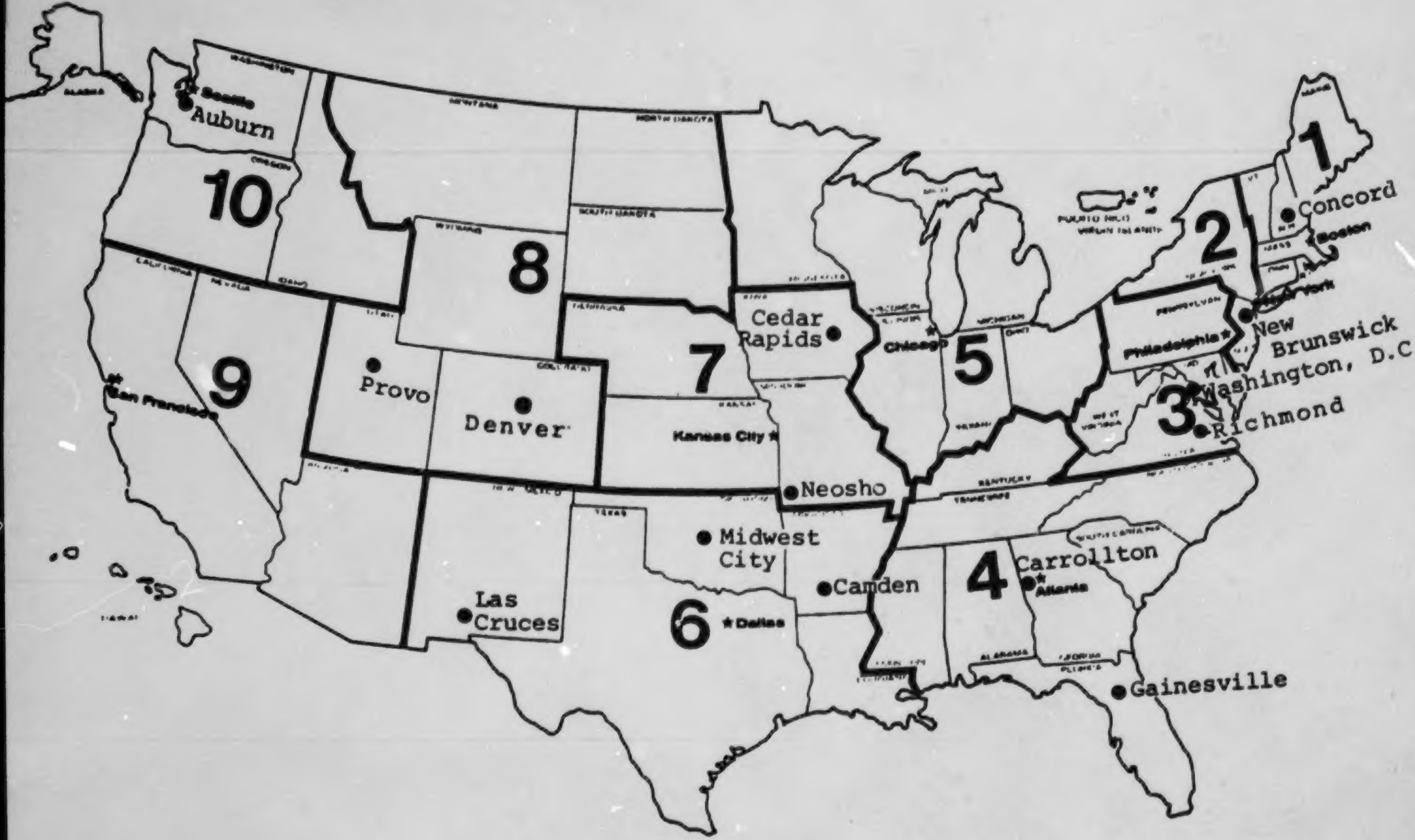

1
Concord
Boston
2
New York
New Brunswick
Philadelphia
3
Washington, D.C.
Richmond
4
Carrollton
Atlanta
Gainesville
5
Chicago
6
Midwest City
Camden
Dallas
Las Cruces
7
Cedar Rapids
Kansas City
Neosho
8
Provo
Denver
9
San Francisco
10
Seattle
Auburn

FIGURE 4. LOCATION OF 109(b) CENTERS

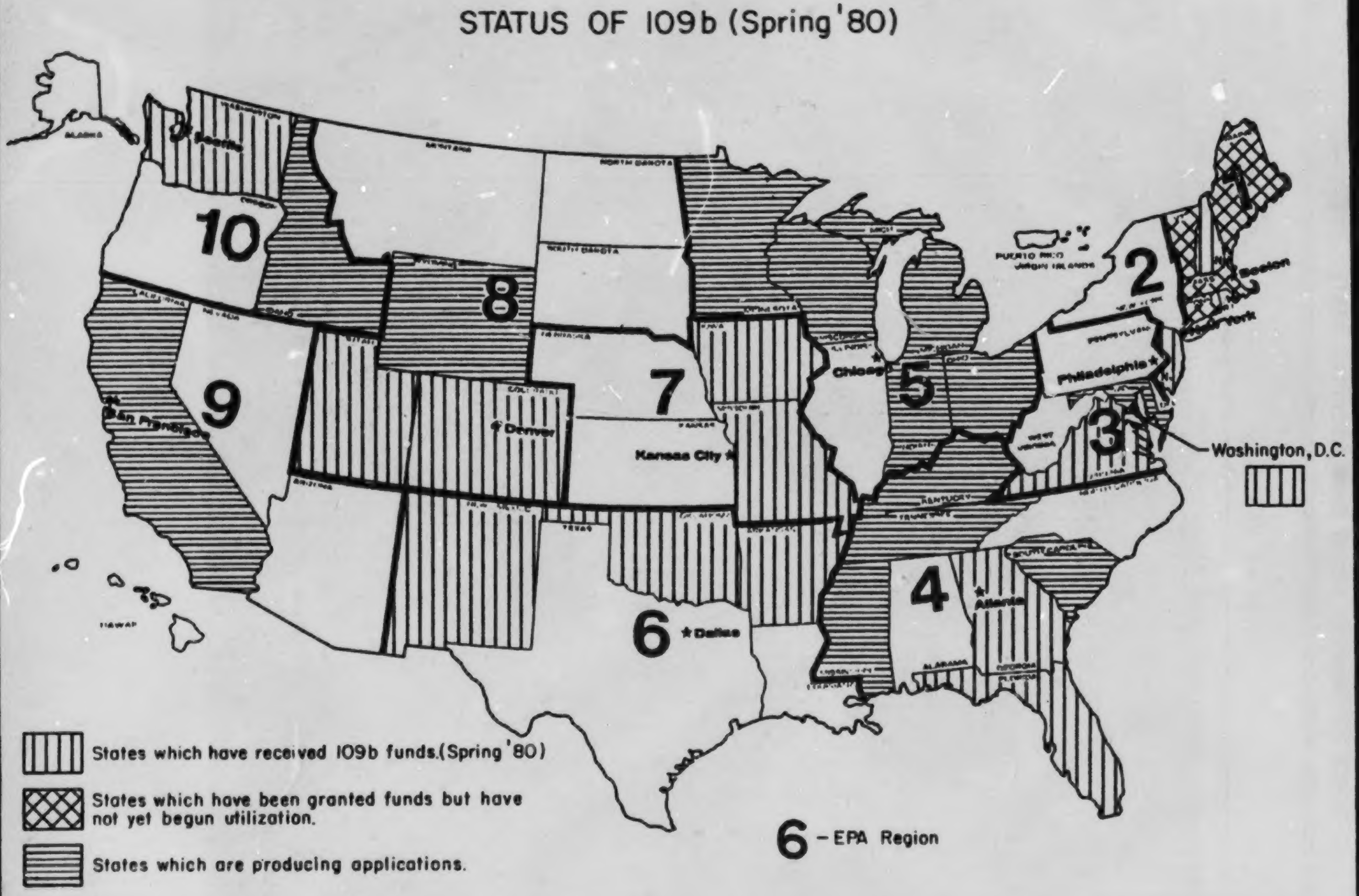

STATUS OF 109b (Spring '80)
10
9
8
7
6
5
4
3
2
1
Seattle
San Francisco
Denver
Kansas City
Dallas
Chicago
Atlanta
Philadelphia
Boston
New York
Washington, D.C.
PUERTO RICO
VIRGIN ISLANDS
States which have received 109b funds.(Spring '80)
States which have been granted funds but have not yet begun utilization.
States which are producing applications.
6 - EPA Region

FIGURE 5. STATUS OF 109(b)

TABLE 2. STATES WHICH HAVE RECEIVED 109(b) FUNDS

	Type of Facility	Amount Requested	Amount Expended
Arkansas	Centralized attached WTP	$250,000	$250,000
Colorado	Centralized/attached WTP	$250,000	$ 30,000
Florida	Centralized/nearby municipal WTP	$250,000	$250,000
Georgia	Centralized/associated WTP	$500,000	$500,000
Iowa	Centralized/attached WTP	$250,000	$250,000
Missouri	Centralized/with trickling filter plant only	$250,000	$250,000
New Hampshire	Centralized (Facility Planning)	$ 30,000 (Step One) (Anticipated $220,000 - Step Two)	$ 30,000 (Step One)
New Jersey	Centralized	$471,650	-0-
*New Mexico	Centralized	$500,000	$500,000
Oklahoma	Centralized/adjacent municipal WTP	$250,000	$250,000
Virginia	Satellite center/tied in to full scale WTP	$250,000	$250,000
*Utah	Centralized	$500,000	$ 20,000
*Washington	Centralized/tied to full scale WTP	$ 20,000 (Step One)	$ 20,000
Washington, D.C.	Centralized/attached full scale WTP	$249,081	$249,081

*Not visited.

CATEGORIZATION OF 109(b) CENTERS BASED ON THE USE OF 109(b) FUNDS

Construction	Equipment	Program Development or Specialized Classes or Instructors
Existing		
Arkansas - Pilot waste treatment facility	Virginia - Provide instrumentation, equipment and other supplies; and minimal building modification.	
Florida - Partial funds for new building including laboratory, classrooms, offices, cafeteria, library, auditorium, and selected equipment.	Washington, D.C. - Provide audio-visual materials, wastewater, mechanical and electrical laboratory equipment, curriculum development, and minor building modifications.	
Georgia - New building including laboratory, offices, shop, classroom and informal room.		
Iowa - Pilot wastewater treatment facility and addition including classrooms, offices, and laboratories.		
Missouri - Improvements including classrooms, study room, auditorium, laboratory and an oxidation pond wastewater treatment plant.		
New Mexico - Construct a facility.		
Oklahoma - Renovate an existing building, adding laboratories, offices, library, and selected equipment.		
Proposed		
Arkansas - Laboratory/classroom, shop and offices.		Oklahoma - Widen program offerings, expand physical facility, increase staff.
Colorado - Laboratory, classrooms, offices, pilot treatment plant.		Vermont - Expand existing training program, and equip a laboratory.
New England Regional - Addition to existing building to include classrooms, laboratory, shops, seminar room, offices, resource center and locker room.		
New Hampshire - Center to include classrooms, laboratory, resource center, stroage areas, and one office.		
New Jersey - Construct classrooms, laboratories, shop, storage space, computer, pilot scale trickling filter system, primary waste treatment area, sewage tap and lift station.		
Utah - Construct a facility containing laboratories, classrooms, storage rooms, reception area, offices and shop.		
Washington - Construct an administration center.		

TABLE 5

DESCRIPTION OF EXISTING AND PROPOSED 109(b) STATEWIDE TRAINING CENTERS

109(b) Statewide Training Centers	Centralized Facility					Regional Outreach		Mobile Training Units(s)	Audio Visual Outreach	Type of Training		
	Constructed New	Modified Existing	Rent/ Lease	Attached WTP	Nearby WTP	Permanent Sites	Arranged Sites			Entry Level	Advanced	Specialized
Existing												
ARKANSAS	x			x	x		x	x		x	x	x
FLORIDA	x				x		x				x	x
GEORGIA				x						x	x	
IOWA	x											
MISSOURI	x									x	x	x
NEW MEXICO												
OKLAHOMA		x			x		x		x	x	x	x
VIRGINIA	x				x	x "Satellites"				x	x	x
WASHINGTON, D.C.		x		x					x	x	x	x
Proposed												
COLORADO	x			x						x	x	
NE REGIONAL		x		x (Package)			x	x		x	x	x
NEW HAMPSHIRE					x					x	x	x
NEW JERSEY	x				x		x		x		x	x
UTAH	x				x		x			x	x	
VERMONT			x									
WASHINGTON	x											

aspect of a given center's activities, the center is identified. Centers have been placed in more than one category as the situation warrants.

As can be seen from the preceding, 109(b) statewide training centers are diverse in their activities and structures. However, in the majority of cases, the greatest expenditure of funds has been to construct a building. This is expected due to the way the 109(b) law was originally written in 1972. With the change in wording in 1977, 109(b) funds have been made available to fund (1) mobile training units, (2) classroom rental, (3) package plants, models and simulations, and (4) specialized instructors. Thus, some recently funded and proposed grants have requested significant monies for program development, specialized instructors and needed equipment. It is probable that, as additional states develop their needs, the funding requests will continue to become more varied, particularly from states that have an already well-established training capability.

CHAPTER III

PERCEIVED PROBLEMS WITH 109(b) PROGRAM AND CURRENT (1978) GUIDANCE DOCUMENTS

109(b) PROGRAM PROBLEMS

The 109(b) program has been in existence about eight years, yet less than 10 percent of the available funding has been utilized. There are numerous possible reasons for this under-utilization, including the following:

(1) Some state governments will not commit "priority" funds to training programs when there is the need for the upgrading or addition of sewage treatment facilities in their respective states.

(2) Some states have well-established statewide training programs and do not want the "hassle" of government grant funding in their program.

(3) Some states do not want any additional Federal funds (they fear "big brotherism").

(4) Some states are not familiar with the many potential uses of 109(b) funds, particularly the "non-construction" potentials. Some key individuals within the state have not become aware of 109(b) funding until very recently, or are not aware of the potentials at all.

(5) Some states have little or no organized statewide training, thus have no organized means of compiling a grant application, or a specified use for the funds.

(6) Some regions have done very little to espouse the use of the 109(b) funds; others place "severe" requirements on the 109(b) application and grant applicants.

SwRI researchers have visited and/or spoken with over 15 109(b) recipients/applicants in 1979-1980. On the national level there is a feeling among the recipients that the regional EPA representatives - be they construction grants, engineering, or training personnel - have been woefully uninformed on 109(b) grant acquisition procedures, requirements, initialization, and finalization. More than one facility administration reported having to go "in the back door" via Washington connections to find out about 109(b), and then having to inform the regional EPA people of the attributes of their own program, literally having to "teach" the regional EPA designated contact about 109(b).

Numerous centers have complained of an apparent lack of communication between EPA-Washington dogma and regional actions. Time delays of an unreasonable type (at least to the grant requestor at the regional level) have allowed unreasonable inflation-fueled cost escalation. Some complaints have arisen in reference to the review activities in a region; these complaints include time delays and the okaying of a plan only to have modifications required at a later date when some more knowledgeable person (generally in WWTP engineering) reviews the documents.

There is a lack of communication between the EPA regions and the national review process, be it in Washington or Cincinnati. Prior to late 1979, the national office did not know what condition the 109(b) system was in because regional offices apparently did not forward status reports; and conversely, the national reviewers did not, of their own volition, keep abreast of the continuing changes in the field. The research team and the EPA national review team "happened" upon at least two cases where Step One funding had been committed from 109(b) funds by the region and construction plans formalized without cognizance of the EPA national review entity. SwRI has encountered a few instances where the national review group questioned the existing utilization of 109(b) funds, indicating a lack of understanding at the national level of fund utilization which has been allowed by regional personnel at various sites in the past.

SwRI has received many calls from individuals inquiring about various aspects of 109(b). The number and types of questions asked indicate that there is a lack of understanding of 109(b) at the state and institutional level. The national program of advertising 109(b) has been minimal and, as a result, the understanding of program potentialities at the state level is sometimes nonexistent.

In its inquiry into 109(b) grant fund utilization, SwRI has been discouraged by the quantity and types of records kept by the existing 109(b) facilities. Even though each recipient had to attest to keeping a statewide facility functional for a period of 10 years after grant receipt in the application, there has been very little attempt by the recipients to keep EPA regional offices apprised of the ongoing statewide training facilities in each receiving state. Conversely, the EPA at both regional and national levels has failed (apparently) to keep track of the activities at each 109(b) center in order to evaluate the overall effectiveness of the applied 109(b) funds and/or the ongoing viability of the particular state's program. A shortcoming of the 109(b) program is the lack of an enforcement mechanism for the EPA to insure that a state maintains a valid statewide training facility after it receives 109(b) funds.

It appears that some regions have been very lenient when contract modifications, serious revisions, or amendments have been requested. The reviews of an award of amendments to a given grant seem to have been made almost routinely within some regions with no review requested at the national level. Unfortunately, a national review cannot guarantee

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that shortcomings in the 109(b) programs are alleviated since the comments at the national level do not have to be followed by the regions. The overall program thus suffers from the lack of a centralized national authority which has binding decision-making capabilities.

The SwRI and EPA national review have uncovered instances where the applying 109(b) center was not up-to-date relative to the plans for their facility because the plans were being developed and modified by the consulting engineer without informing the client of the changes. Similarly, it appears that the review of the engineering of some projects has been conducted in an unacceptable fashion within the region such that obvious design deficiencies, particularly in "student oriented, on campus, pilot waste treatment facilities" were overlooked.

Other design mistakes have occurred whereby the cost of one project was increased by $50,000 due to a gaudy roof design; and another project which was to have cost $1.35 million had its cost increased $146,000 because, with the award of a Federal grant, national union scale wages had to be paid to the contractor. Thus the 109(b) grant of $250,000 had its effectiveness diluted to only $104,000. Such "planning" deficiencies could be overcome if the participating states, regional reviewers, and national reviewers were acting "in concert" to produce the most cost effective use of 109(b) funds.

In some regions, the responsibility for the 109(b) program has been placed with the Regional Workforce Coordinator who acts to "sell" the program to the states. In others, the responsibility has been retained by the Construction Grants personnel, with the Review Engineers at a lower level being responsible for overseeing the efforts of an individual state or all the states in a region. Generally, Training Grants people at the regional level are brought in for review only as an afterthought and, in many of the regions, as far as the existing recipients are concerned no training personnel were ever contacted. The 109(b) program must make efforts in the future to insure that review by training personnel at the regional level occurs, particularly if the lack of contact with the National Review Office continues.

Most of the existing 109(b) grants prior to 1977 were "construction" oriented. With the "training" orientation of the EPA interpretation after 1977, many of the upcoming grants will be oriented totally to training; i.e., instructors, equipment, curriculum development, etc. The continuing input of personnel familiar with training and training needs will be crucial to the understanding and acceptable development of upcoming 109(b) grant expenditures, particularly at a regional and national level within the EPA. In summation, there needs to be better communication between the states and EPA regional representatives; the regional EPA people and the national reviewers; and the national responsible 109(b) agent and the states.

The EPA should develop a means of acquiring a continuing update on the status of 109(b) funded statewide training centers (perhaps bi-yearly, and 1, 3, 5, and 10 year composite reports); actual legal accountability needs to be put into the requirement for operating a center for 10 years after acquiring funds in order to solidify the continuing interest of EPA in each funded center and to instill a needed "feeling of accountability" at the state level.

Review of the 109(b) proposals must be accomplished at the national as well as regional level before any funds are committed within the regions, if the national objectives of the 109(b) program are to be met in the most efficient manner. Likewise, additions, revisions and subsequent amendments must be perused at the national level before funds are to be released within the regions in order for the EPA to maintain a truly national understanding and to provide a national, cohesive leadership to 109(b) grantees through the regional representatives.

109(b) GUIDANCE DOCUMENTS (1978)

The existing 109(b) Guidance (see Appendix A Part 2) was promulgated in October, 1978, and circulated to the EPA Regional Administrators (I-X) at that time. This Guidance was developed in response to legislative changes in the 1972 109(b) law which occurred in the 1977 Amendments to the Clean Water Act. The "new" Guidance pointed out the major changes from the 1972 legislation which included the following: (1) funding eligibility for 109(b) grants was increased from $250,000 to $500,000 for each state; (2) mobile training units, classroom rental, and specialized instructors were made grant eligible; (3) regional facilities were allowed; and (4) states which had not received the full $500,000 allocation could ask for a grant amendment(s) up to the $500,000 funding level.

The 1978 Guidance is divided into four sections as follows: (1) Types of Training Projects, (2) Application Procedures, (3) Grant Review Process, and (4) Legal Counsel Response to Questions Regarding Implementation of Sub-Section 109(b) - State Training Facilities. The following paragraphs contain a discussion of the SwRI perception of the information contained in each of the sections in the Guidance document.

Types of Training Projects Which can be Funded

This section should be more inclusive and renamed as above. The main type of fund expenditure (i.e., classrooms, laboratories, shops, offices, or a statewide training center building) is not discussed here, but should be included as the first in the list of eligible expenditures. The information contained in Section IV in the 11/19/73 responses found in questions 2, 3, 4, 5, and 6, and that found in the 4/19/78 responses to questions 1, 2, 3, 4, 5, 6, and 7 should be rewritten and included as a part of the "Types of Training Projects..." section. This section should attempt to "spell out" to the reader just what is allowed to be funded, and should anticipate and answer the reader's questions in narrative. A final statement to the effect that if a reader had further questions he should contact a named, knowledgeable office or person would be appropriate. This section should be made as inclusive as possible, providing a thorough discussion of the current thinking of the EPA on 109(b) grant eligible elements. It is advisable to include a listing of existing 109(b) recipients, along with a short description of 109(b) fund utilization by each recipient. A contact person should be designated at each center to allow interested parties to further their knowledge through direct contact with these most knowledgeable persons.

Application Procedures

This section should be expanded to include a thorough discussion of the 109(b) application/acquisition process similar to that in Chapter IV of this document. The definitive discussion of the Program Narrative found in the Guidance should be retained in any new presentation, and should be amended to include any new considerations. The new Guidance should be updated to include the current EPA requirements relative to obtaining "step funding" in 109(b) grants. After reading this section of the Guidance document, an applicant should know exactly what he needs to include in his grant request if it is to be successful. Samples of the grant forms should be made an attachment to the Guidance.

Grant Review Process

This section should be expanded to include a thorough discussion of the "normal grant review process" and the special review requirements for a 109(b) grant. The national review agency should be named, with a designated contact person. This section should acquaint the reader with the intricacies of review and approval and should provide him with anticipated "target dates" (after reception) for review element completion. The various steps in the process should be identified in simple flow diagram or other illustration.

SwRI suggests that the finished Guidance document should be designed to be useful not only for EPA regional staff, but most importantly for potential 109(b) applicants. One of the major shortcomings of the existing Guidance is that very few individuals outside the EPA have seen the document. Once completed, a 109(b) Guidance Package should be sent not only to the regions but to the appropriate agency or entity (or both) within each of the eligible states, the District of Columbia, and Puerto Rico. This new Guidance can only be effective if all the individuals who can benefit from it receive it and assimilate its contents.

CHAPTER IV

109(b) APPLICATION AND ACQUISITION PROCESS

Much of the information in this chapter was developed at the 109(b) Workshop which was held in Cincinnati, Ohio, in late February, 1980. The Workshop was attended by nine representatives of existing 109(b) centers and the results presented here contain the consensus of the assembled group. A full summary of the activities at the Workshop are found in Chapter 6.

Table 6 shows an outline of the activities which should occur in the 109(b) application/acquisition process. Each of the elements of the Table will be discussed below. If the representative of a given state follows the suggestions presented here, a viable, ongoing statewide training facility should result.

I. LEARN THAT 109(b) PROGRAM EXISTS

This step is the responsibility of the 109(b) applicant. In recent years, the news of 109(b) fund availability has been transmitted orally within the training community. The news of the availability of funds has been transferred from regional EPA offices to locally interested groups through direct contact initiated by the interested party or by suggestions from EPA personnel. In addition, inquiries from potential applicants have been directed to consultants who have worked on 109(b) related projects and to existing centers. No formal advertising, such as announcements in the Federal Register, have occurred recently, though initial interest in the 109(b) program was encouraged in this way.

II. LEARN WHAT 109(b) PROGRAM IS

The learning experience for 109(b) applicants has been a time consuming, difficult process. EPA has disseminated a Guidance Document to its regional offices, but many of those who have applied for 109(b) funds in the past did not see the document. Information on the 109(b) program can be obtained directly from Regional EPA offices or currently from the National Training and Operational Technology Center in Cincinnati, Ohio. Packets containing grant application information are available from various sources within the Federal government, and contain information on grant requirements and the offical forms for application.

III. DETERMINE HOW TO RECEIVE A 109(b) GRANT

The methods by which prospective applicants learn of the 109(b) application requirements is by perusal of grant application forms and accompanying

TABLE 6

109(b) APPLICATION AND ACQUISITION PROCESS

I. Learn that 109(b) exists
II. Learn what 109(b) is
III. Determine how to receive a 109(b) grant
IV. Perform pre-application activities

    A. Identify or establish coordination mechanism
    B. Identify training needs

        1. Number needing training
        2. Number by training levels
        3. Where are the needs (geographic)

    C. Identify existing training program
    D. Identify weaknesses in existing training programs and resources
    E. Establish training program goals designed to alleviate weaknesses
    F. Determine if 109(b) fits into the state program
    G. Identify potential 109(b) applicants
    H. Evaluate potential 109(b) applicants

V. Selection of 109(b) applicant

    A. Establish selection criteria

        1. Political acceptability
        2. Location
        3. Human resources
        4. Program operations funding capability
        5. Commitment
        6. Prior involvement in state training
        7. Existing facilities
        8. Other

    B. Select an applicant

VI. Identify 109(b) program role in statewide training program

    A. Identify training needs

        1. Identify existing and planned facilities

            a. Types
            b. Sizes
            c. Location

        2. Identify existing and projected work force

            a. Numbers
            b. Skills/Knowledge
            c. Location
            d. Promotion and turnover (rate and numbers)

        3. Identify training related operational problems
        4. Identify other generators of training demand

            a. Certification
            b. Continuing education requirements

    B. Define training program objectives

        1. Identify curricula to be used by skill level
        2. Identify training experiences to develop needed skills
        3. Prioritize objectives

    C. Identify existing programs
    D. Identify weaknesses
    E. Identify methodology to evaluate training program

VII. Plan 109(b) Program

    A. Identify needs to be satisfied with 109(b) funding
    B. Define learning experiences to meet program objectives
    C. Identify resources to provide needed learning experiences
    D. Evaluate and select options for using 109(b) funds

VIII. Complete application
IX. Submit application to state for review and approval
X. Submit state approved application to U.S. EPA
XI. EPA approval
XII. Implement 109(b) program as described in approved application
XIII. Evaluate implemented program
XIV. Respond to evaluation results and continue implementation

narrative; by discussion with EPA personnel; by discussion with other knowledgeable parties; and by review of information on ongoing programs including grant applications which were successful. Most interested observers agree that a complete package which contains 109(b) legislative history, precisely stated application requirements, a list of the activities which should be accomplished during the 109(b) process, and examples of ongoing, viable statewide training programs should be made available routinely to interested parties. Each prospective applicant, as of now, must contact his appropriate EPA regional representatives in order to determine what is required. The requirements being placed on applicants and their applications varies from region to region, thus direct contact is the only way to resolve potential regional differences. A new EPA guidance document could relieve some of the apparent inequities which have been and are occurring between regions. With the circulation of a new guidance document, requirements should become more uniform throughout the country.

IV. PERFORM PRE-APPLICATION ACTIVITIES

It is highly recommended that a coordinating mechanism be developed early within the 109(b) process within a given state. The designation and formation of a coordinating mechanism, be it a Joint Training Coordinating Committee, Governor's Committee, informal group, or whatever, needs to include representatives of each of the affected "interest groups" in the state. The coordinating group should have members with state affiliation, with the statewide wastewater operator certification authority and representatives of occupational and adult education agencies included; the group should have members from the training community within the state including administrators, educators, instructors and members of professional associations; it should have members from the operators who will be participants in the statewide training programs offered by the 109(b) center. This mix of members is considered the minimal mix to insure that necessary cooperation between both complementary and competing entities can be developed as early in the program as is possible.

Through the coordinating mechanism, the state should identify its training needs in a preliminary fashion. The coordinating group should, within their collective knowledge, know the approximate number of personnel needing training, the various levels of training needed, and the most suitable geographic locations for the training.

The members of the coordinating group should be able to develop a description of the existing training program(s) and from their collective activities to identify weaknesses in the program, including the relative quality of delivery mechanisms and physical resources. Consequently, the group should be able to devise methods to alleviate weaknesses in the program, while strengthening the overall training program activities. With a series of program-strengthening actions in mind, the team should then be able to ascertain whether 109(b) funds could be used to totally or partially fulfil the needs of the statewide training ativities in the particular state. In all cases, the findings of the group should be well documented.

The preceding activities should be accomplished by the assembled participants as an assessment step in determining if their state should seek 109(b) funds. If, indeed, the group finds that a 109(b) center would "fit into" the statewide training program, then the group should identify and evaluate potential 109(b) applicants within the state. These preliminary assessments would not preclude an entity for consideration, but would be utilized to assure that all those potentially interested entities are considered. Because of the diverse background of the coordinating group, a thorough evaluation of potential statewide training center candidates should result from the group's deliberations.

V. SELECTION OF 109(b) APPLICANT

The coordinating group should be granted the responsibility for recommending the 109(b) applicant from the state. In most cases, the entities to be considered for implementing a statewide training program and for utilization of a 109(b) grant will be represented on the coordinating group prior to selection. Of course, those states which have an ongoing statewide training program will probably choose their existing program as the 109(b) grantee, but those states without an ongoing training program will be looking for a candidate which can establish and maintain a total statewide training program as well as the utilization of a 109(b) grant.

In the selection process, the following criteria should be considered in the final evaluation of an entity to become the statewide training center: (1) political acceptability, (2) location, (3) human resources, (4) program operations funding capability, (5) commitment, (6) prior involvement in statewide training, (7) existing facilities, and other factors the coordinating group believes are important to the state 109(b) facility.

The above listed criteria are not arranged in any order of importance; rather, each must be considered in the statewide context. In some states, one or more of the criteria may outrank others in importance, but each should be considered and potential problems identified before the final selection of an applicant occurs. The following paragraphs will give a brief discussion of each of the criteria, identifying the reasons why each is important.

- Political acceptability - Political acceptability is a catch-all term which refers to the formal organization, as well as the informal social relationships which develop in a state both in public and private entities and organizations. In order to be a 109(b) recipient, a facility must be designated a statewide training center by the governor of the particular state; thus, a significant political ally (i.e., the governor) must be present. The designated center, if it is to be effective, must be able to reach out and serve the training needs of the state; to do this, cooperation between both competitive and complementary state, local, and private interest groups must be fostered. In many cases, the academic community must be satisfied that the appointed 109(b) recipient exemplifies the goals and recognized needs of the educational community. Lobbying groups such as operators' associations, university regents and others must be amenable to the designated recipient if the cooperation necessary to provide a comprehensive training program is to be realized. The coordinating group, by its early inception and inclusion in the 109(b) process, should act as a bolstering force within the social-political milieu in a given state. The more cooperation that can be developed between interested parties early in the planning process and continuing throughout, the better the final program will be and the easier will be its eventual attainment.

- Location - The physical location of a statewide training facility can be a critical factor in the eventual success of a statewide training program. Some states have located their training centers away from their population centers and, in the opinion of many, have minimized attendance at their facility by doing so. This does not mean that all statewide training centers should be near the population center for a given state, but rather the coordinating group should investigate the needs of the potential audience not only on educational terms but also on transportational/access, serviceability terms. The type of center can and should be influenced by the potential location of a new facility, or the existing location of a center to be improved. For example, if an existing facility is a satellite operation, then the justification for building a pilot wastewater treatment plant with 109(b) funds at one location is lessened. Similarly, if a new center is to offer wastewater operator training classes for an entire state, an attempt should be made to locate the facility favorably with regard to total miles traveled to receive training and to the proximity of major population centers.

- Human resources - This criteria refers to all personnel who would be involved in implementing a statewide training program. The staff to be involved directly at the proposed facility would be most important, but support staff such as administrators, audiovisual specialists, librarians, specialized instructors, and others should be a part of the evaluation. Adequate staffing is an important element in the success of a newly organized statewide training center. Similarly, the maintenance of a qualified staff is difficult in the seller's market which now prevails in the wastewater operator training business.

- Program operation funding capability - Each facility/organization to be considered as a statewide training center should be able to demonstrate fiscal support for at least ten years beyond the consideration date. To be effective, a center must be able to schedule classes, hire instructors, maintain its facility, and upgrade its equipment through time. Those facilities associated with the statewide educational system will generally be provided with some operating funds by the state, usually through percentage return of tuition fees collected for the various courses. A continuing statewide support is a critical element in the consideration of a site for selection. It is not recommended that an entity be selected on the basis of probable support, but rather that a rigorous fiscal assessment be accomplished before selection occurs. The fiscal assessment should demonstrate the ability of the candidate to provide the full gamut of services associated with a statewide training function. Similarly, the sources of all operating funds should be identified such that the reviewer does not have to make assumptions of fiscal responsibility within the program.

- Commitment - A written commitment from a responsible entity to support the statewide training center for a period of not less than ten (10) years from the date of inception is required in order to receive a 109(b) grant. The commitment may be directly from the state, through the governor's office or other state agency; or may take the form of support of a program through a state university, college, or vo-tech school; or from a county, municipality, or private organization. In any case, the candidate must be designated by the governor as the statewide training center in order to make it eligible for 109(b) grant funds. Any commitment should include a statement of continuing fiscal solvency with the strongest guarantee possible in the given situation.

- Prior involvement in state training - It is advisable that the candidate be experienced in wastewater operator training, and that the administrators have prior experience working with representatives of the state. Though prior training involvement cannot guarantee a successful program, it does indicate a genuine interest in the issue by the applicant. The evaluation of the attributes of an applicant can be accomplished more easily if prior knowledge is a part of the collective information available to the coordinating group members. The ability of an applicant to comprehend the complexity and difficulty in mounting and/or maintaining a statewide training center should be heightened if prior training has been done by the applicant. The existence of ties to the operator community, the training community, and the state hierarchy before selection as a statewide training center and/or a 109(b) grant applicant should make the eventual realization of program objectives an easier task than that of a new organization. The selection of a new organization may necessitate a total learning experience. It is probable that 109(b) funds will be more effective when used to strengthen an existing program rather than starting a totally new program.

- Existing facilities - The facilities already "on hand" at the site of the applicant should be a positive factor in the evaluation of the applicant. Any buildings, classrooms, laboratories, mobile units, or other hardware will give the applicant a better base on which to build the proposed statewide training center. The type of available equipment and its existing utilization should provide the coordinating group with a valuable insight into the viability of the applicant, and the nature of a future statewide training facility which would be operated by the selectee. In addition, the perusal of existing facilities by the coordinating group should impress upon the group the type of equipment needed to maintain training programs and the administrative structure to operate them.

- o Other - This category is intended to allow the coordinating group to establish other evaluation criteria which, during the course of their deliberations, become meaningful. Certainly, each coordinating mechanism operating within their own context and understanding will develop evaluation methodologies which are unique to their situation.

Utilizing the evaluation methodology which has been agreed upon, the coordinating group will select one of the applicants to establish a statewide training center. The selectee is then recommended to the governor for statewide designation in order to qualify for 109(b) grant funding. Because statewide designation is prerequisite to 109(b) funding, it follows that the 109(b) applicant is the statewide training facility or a part of it. In those states which already have a statewide training center, the selection of a 109(b) grant applicant is simplified; generally, the existing statewide training center becomes the 109(b) designated applicant.

VI. IDENTIFY 109(b) PROGRAM ROLE IN STATEWIDE TRAINING PROGRAM

In order to define the role of 109(b) funding in a statewide training program, the state training facility must first have a thorough understanding of the statewide training needs, training program objectives, existing training programs, weaknesses in their activities, and a means of evaluating their own program in an orderly, meaningful way. Each of the elements which relate to the identification of the 109(b) program role in statewide training activities is discussed below.

Identify Training Needs

The needs assessment which is accomplished at this stage of 109(b) planning should be formal and intensive. The needs survey should be comprehensive, including descriptions of existing facilities and programs as well as documenting the existing work force and projecting future work force demands. It is crucial that the examining agency identify problems within the existing system, pinpointing, if possible, specific changes which would benefit an ongoing program. As part of the entire needs evaluation process, the reviewers must consider the effects of certification and continuing education requirements on existing or planned statewide training efforts.

In addition to identifying training needs, the coordination group should have a thorough understanding of the objectives of the existing or planned statewide training program and should always state those goals or objectives in writing. The existing training programs should be documented and their response to the identified objectives of the statewide effort should be evaluated. Any weakness or problem areas within the existing or planned program should be identified and potential remedial efforts postulated. It is advisable that the curricula used or to be used at various skill levels be identified and discussed; that training efforts which can provide the needed skills be identified, and that the coordination committee attempt to redefine and prioritize program objectives to meet the perceived needs.

One of the major elements of any statewide training program should be the ability of the program to thoroughly, and systematically, evaluate itself. The coordination committee should strive to develop a workable evaluation methodology which can be used to continually provide input on program effectiveness. The methodology should be designed to accommodate the growth of the statewide training program and the methodology should be capable of tracking a program through many years. The evaluation methodology generated by the group should be inclusive yet flexible enough to deal with a multifaceted program. A good evaluation methodology is indicative of a thorough understanding of the many attributes of a statewide training center, and a well-planned, easily augmented evaluation effort is an excellent indication of the probable high quality of the future program in a given state.

VII. PLAN 109(b) PROGRAM

During the course of establishing or scrutinizing a statewide training center or program, the coordination group should become totally familiar with the program objectives and means of attaining those objectives. Utilizing this total familiarity, the coordinating committee should be able to identify eligible elements of the planned or existing program which could benefit from the use of 109(b) funds. In order to fully comprehend the needs, the coordinating group must be able to delineate the learning experiences which can satisfy the statewide program objectives. By fully comprehending the learning experiences, the gamut of resources which can satisfy the perceived needs can and should be identified. It is probable that more than one activity or action which can alleviate problems or improve an overall program will be identified. The coordinating group or its agent must be prepared (and must be diverse enough) to evaluate the available options and eventually develop a complete grant application for submittal to the U.S. EPA. Based on available information, a request for 109(b) grant funds should propose to utilize the needed dollars in a cohesive, structured way which can be proven to be an effective means of establishing or enhancing the training activities in a statewide program.

VIII. COMPLETE APPLICATION

Either the coordinating mechanism, the staff of the entity to be funded, or a combination thereof should write the application. During the application formulation process, it is important that dialogue between the state, the EPA, the coordinating committe, and the grant selectee be well maintained. Problems should be alleviated within the state before the application is submitted, and EPA personnel should be solicited for information on an "as needed" basis by the selectee. The narrative accompanying the grant should include all the required elements (mentioned earlier in Section I) and should be concise and well organized. Review copies of the application should be circulated among the coordinating committee members for their review and comment prior to official request for state approval.

XIX. SUBMIT APPLICATION TO STATE FOR REVIEW AND APPROVAL

A completed version of the grant application should be reviewed and approved by the governor of the state. The governor must name the applicant as the statewide training center, and must provide a statement to the effect that the facility will be in operation for ten years (or for the effective life of certain pieces of equipment). If the coordinating mechanism has functioned as planned, the state approval should be more of a formality than a critical review which requires direct response of the 109(b) grant applicant.

X. SUBMIT STATE APPROVED APPLICATION TO THE U.S. EPA

After approval by the state through the governor's office, the completed grant with accompanying testament must be submitted to the EPA. The review process of the EPA will take from one to three months, depending on various factors. Again, if the state coordinating mechanism has functioned adequately, the EPA review should require only minimal responses from the applicant, if any.

XI. EPA APPROVAL

Based on a thorougn review of the 109(b) grant application at various levels and offices, the EPA will decide on the fundability of the applicant's proposal. Assuming all is in order and in acceptable language to the EPA, formal notification of grant funding will be made through the Region directly to the state and the selectee. The construction grants personnel in a given region and state will be responsible for overseeing a 109(b) grant and will generally be the official contact for grant information.

XII. IMPLEMENT 109(b) PROGRAM AS DESCRIBED IN APPROVAL APPLICATION

This part of the process is the responsibility of each state. The coordinating mechanism should be interested in a continuing report by the selectee of the activities engendered by the 109(b) grant. The selectee should report progress to the coordinating committee on a regular basis, and should develop a methodology to evaluate its total program including the utilization of 109(b) funds in the program. The grant recipient should be introspective, with the goal of bettering its total program and the effectiveness of 109(b) monies within the program.

XIV. RESPOND TO EVALUATION RESULTS AND CONTINUE IMPLEMENTATION

The grant recipient/statewide training center should respond to suggestions for improvement from all sources. The coordinating group's recommendations and the internal evaluation of the facility should be key elements in any upgrade plan. Through the judicious use of self- and outside-evaluation, a statewide training center should be able to better respond to training needs, and by doing so increase the effectiveness of the 109(b) grant expenditures at the given center.

CHAPTER V

ROLE OF 109(b) IN STATEWIDE TRAINING PROGRAMS

The 109(b) funds which have been expended to date have been used in the four following ways: (1) to supply or augment funds for the construction of a new building in which a new or ongoing centralized statewide training program will be located (ex. Florida and Georgia); (2) to add training capabilities to a structure through modification (ex. Oklahoma); (3) to build a pilot wastewater training facility (ex. Arkansas); (4) to enhance existing or new programs through the acquisition of various pieces of equipment (ex. Virginia, District of Columbia).

The following paragraphs present a discussion of each of the general uses of 109(b) funds listed above.

CONSTRUCTION OF NEW STRUCTURES

Five states have utilized all or parts of their 109(b) monies to construct totally new structures for utilization in a statewide training program. In some cases, the funds have been augmented substantially by state appropriations (ex. Florida), while in others, primarily Federal funds have been utilized in the construction activities (ex. Iowa). The states which have built new structures to house their training centers decided on this use of Federal 109(b) funds only after considerable deliberations within the state. The responsible groups in each state perused existing plans and documents for such facilities (with the exception of Iowa which was the first 109(b) center) and selected the options best suited for their particular needs. Formal and informal needs surveys were conducted and the facilities were located and scaled accordingly. In all cases, the structure which was built accommodated the perceived needs of the training center staff and was planned to enhance the training capability of the particular entity.

RENOVATED, REMODELED, OR AUGMENTED STRUCTURES

Two states have chosen to expend 109(b) funds by renovating, remodeling or by adding on to existing structures. These states generally had an ongoing training program which was already the official statewide training program or was the "de facto" statewide program requiring only the approval of the governor to be eligible for 109(b) funds. The majority of building modifications have been to provide adequate classroom, laboratory, and/or shop space with relatively little of the funds being used to build pilot, scale, or mock-up wastewater systems for training within or adjacent to the structure. Generally, the programs that have utilized 109(b) funds for floor space expansion had already acquired package wastewater plants, mockups, and other training devices but had outgrown the facilities which were originally provided for their center.

PILOT WASTEWATER FACILITY

Two states, Iowa and Arkansas, have used the majority of their 109(b) funds to construct pilot wastewater treatment facilities for student training. Both facilities are intended for use by students as a regular part of their training process. Each plant is set up to be a "hands on" laboratory which can be upset and subsequently stabilized by the wastewater training student. The Iowa facility is operational, while the Arkansas plant is in the final make-ready stage. Classrooms, laboratories, and shops are provided adjacent to each of the pilot wastewater treatment plants such that "hands on" training is integrated readily with the more formal classroom methods.

ENHANCE EXISTING OR NEW PROGRAMS WITH EQUIPMENT

Most of the states have used a portion of their 109(b) funds to purchase laboratory, shop, classroom, or office instrumentation, equipment, or supplies. Virginia and the District of Columbia have utilized the majority of their funds for equipment purchases. Virginia bought instrumentation to be carried to satellite centers and/or to be used at its centralized location. Equipment/supplies purchased with 109(b) funds range from secretarial supplies to gas chromatographs. Pieces of laboratory equipment including pH meters, dissolved oxygen meters, titrating equipment, and miscellaneous glassware are the most commonly purchased items.

A somewhat unique expenditure of 109(b) funds has occurred in Washington, D.C. Funds have been spent primarily for audio-visual training equipment to be utilized at a single facility in the District of Columbia. The training is for a "captive" program which will be conducted at the Blue Plains facility and will be totally devoted to the operation and maintenance of that facility.

PLANNED INTERSTATE CENTER

Pending requests for 109(b) funds include monies to build a New England Regional facility at New England Regional Wastewater Institute (NERWI) in South Portland, Maine. This grant, when funded, would be the first in which state 109(b) allotments are transferred outside the given state for expenditure. Six New England states are anticipated to be participants in the proposed facility (see later discussion of NERWI).

CHAPTER VI

DESCRIPTION OF SELECTED EXISTING OR PLANNED 109(b) STATE TRAINING FACILITIES

This section is a compilation and subsequent summation of the information collected at each of the 109(b) facilities/centers or proposed facilities/centers which were visited during the course of this study. The information presented here includes a background summary, history of 109(b) application, utilization of 109(b) funds discussion, and a description of the statewide training program. In most cases, the presentation has been reviewed and revised by a representative of the facility/center.

ARKANSAS

Summary

The designated Statewide Training Facility is located on the campus of Southern Arkansas University Technical Branch (SAUTB), in East Camden, Arkansas. The state agency, the Arkansas Department of Pollution Control and Ecology, works closely with representatives of the Technical Branch in overseeing the operation of the facility.

The 109(b) grant in Arkansas has been used solely to build a pilot wastewater treatment plant on the SAUTB campus. Arkansas has requested a second grant to utilize the remaining 109(b) funds to provide a laboratory, classroom area, motor/pump repair/instruction shop, office space, and program development. At present, classrooms and office space for statewide training programs are shared with other SAUTB departments.

The Arkansas Statewide Training Program is conducting classes at the SAUTB, and employs a mobile unit facility operated in cooperation with the Arkansas Department of Pollution Control and Ecology to provide training to about 350 persons per year.

History of Application for 109(b)

Interest in the acquisition of 109(b) funds evolved in the Arkansas Department of Pollution Control and Ecology (ADPCE) as a result of an advertisement placed by the EPA in the Federal Register. The preliminary contact was made by an ADPCE Training Officer. An informal committee, including members from ADPCE and SAUTB, determined the need for a statewide training facility through an informal survey. The ADPCE and SAUTB had already been cooperatively operating the mobile van facility which was based at SAUTB. The Arkansas Department of Health (ADH) was the only other state agency which was thought of as a potential applicant; ADH was dropped from consideration due to the already existing ties in wastewater training between the state of Arkansas and SAUTB.

The Governor of Arkansas made the final decision, citing the already existing mobile unit program, and the SAUTB campus including dormatories, cafeteria, and available office space as the deciding factors in designating SAUTB as the Statewide Training Center.

Utilization of 109(b) Funds

The Arkansas decision was to use the total $250,000 then available to construct a pilot plant with a 40,000 gallon per day capacity. The plant was designed to allow modification and manipulation in order to be

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used as a teaching tool. The main elements of the plant include contact stabilization, clarifier, aerator, bar screen, grit chamber, comminutor, and a tertiary filter modification.

There were no serious problems or delay in the initiation of the grant; however, the construction of the pilot plant was delayed due to contractor problems. Serious delays have occurred in the second phase of pilot plant construction activities. From the recipient point of view, the regional EPA delayed inordinately the final acceptance of the Arkansas plan while advancing no explanation. The Arkansas participants note that there was a shuffle in EPA staff assignments which may have added to the delay in plan certification. Arkansas personnel recognize that there may have been undue pressure placed on local contractors on the EPA to rush approval. The EPA view is that the final approval of the Arkansas facility was delayed because of design deficiencies.

The Arkansas pilot facility at SAUTB is not ready for use as of February 1980. Estimated construction costs have risen from $250,000 in 1975 to about $314,000 ($64,000 in state funds) in late 1979. There has been a twelve month time overrun on the original contract responsibility which has been blamed on poor organization by the construction contractor, and poor supervision by the regional EPA personnel.

Statewide Training Program

The 109(b) funded aspect of the statewide training program cannot yet be utilized because the pilot plant is not functioning as planned. The mobile unit facility is continuing to operate, however. Table 7 presents a synopsis of training functions at SAUTB in late 1979. The 12' x 64' mobile unit accounts for about 350 students per year in classes up to 25, while the soon-to-begin SAUTB State Training Program is anticipated to train about 500 students per year when the pilot facility is completed.

The State Training Center will utilize SAUTB to provide floor space for classroom activities; the pilot sewage treatment facility will serve as the "hands on" laboratory for the program. At the present, there are no plans for a formal Learning Resource Center or self-initiated television activities. Now, operators from various statewide locations utilize materials provided by the existing staff on a loan basis.

The SAUTB State Training Program has three full-time staff. The director oversees an instructor (who also functions as a lab director), and one full-time instructor who conducts training classes from the mobile unit. After the completion of the pilot wastewater facility, the program plans to expand with the addition of two full-time instructors. Full scale operation of the Arkansas Statewide Training Program will commence in 1981.

It is anticipated that the projected utilization of the new training facility of 500/year, coupled with the mobile unit enrollment potential of 350/year, will meet totally the training requirements of the state.

The SAUTB is conducting courses in wastewater treatment, water supply,

TABLE 7. FUNCTIONS OF ARKANSAS TRAINING FACILITY

Functions of Activities Within Realm of Training Facility	Planned (Yes or No)	Accomplished by (Year)	Expect to Achieve by (Year)	Reasons Expectations not Realized
2-yr. Associate Degree	Exists	Started in 1974		
1-yr. Technical Certificate	No			Initially had 9 months course; now none. May possibly re-establish. Do have short term certification program (1-2 weeks).
Pre-service Training	Exists	Started in 1974		
Inservice Training	Exists	Started in 1974		
On-site Training	Yes	Some in July 1979, now waiting on plant completion.		Still minor problems with pilot plant.
Research	No			Beyond scope of Tech. Branch.
Development of Training Materials	Unofficial only at present		Perhaps in 1980 a training manual will result.	No cohesive effort to date due to newness of present training.
Dissemination of Training Materials	Yes, out of mobile unit	Started in 1974		
Instructor Development	No			Most are pre-trained. Beyond scope of Tech. Branch.
Other (specify)	----			

and wastewater analysis, with new course additions planned for 1980 including solid waste, air pollution, and laboratory analyses. The purpose of the existing and planned training is to augment the knowledge of working operators, and to prepare entry level operators. The various courses prepare operators to take and pass state originated certification exams, but the courses do not substitute for the examinations. An unofficial coordination committee exists within the state, and its inputs on the Statewide Training Program are solicited.

COLORADO

Summary

The State of Colorado has designated the Community College of Denver to operate the statewide Environmental Training Center (Wastewater Treatment Plant Operators Training Facility) pursuant to the granting of a $500,000 request for available funds from the 109(b) program. The Federal funds will be used in the construction of a training facility with attached wastewater treatment plant on the Red Rocks Campus of the Community College of Denver. The facility will consist of a laboratory, general purpose classroom, office, library, storage space, and waste treatment plant.

History of Application for 109(b)

The State of Colorado originally learned of the availability of 109(b) funds in 1972 as a result of a visit by EPA personnel from Washington, D.C. In late 1972 and early 1973, the Community College of Denver (CCD) requested more information from the EPA Region 8 office in Denver which the Regional personnel were not able to supply. CCD then turned directly to knowledgeable sources in Washington, D.C. to obtain the desired information, actually informing the EPA Region 8 staff of decisions, interpretations, etc. of EPA policy as emanating from the Washington Office. CCD had been working with the Colorado Department of Health in the wastewater training area and the two entities combined their efforts to work with the EPA to produce an acceptable 109(b) application.

The college and state personnel studied the Iowa (Kirkwood Community College) and Virginia (J. Sargeant Reynolds Community College) plans and incorporated many elements of both plans into the Colorado proposal. The CCD had a Manpower Development Training Act grant in conjunction with Kirkwood Community College and, as a result, fostered ties with the EPA regional staff and KCC staff. Regular contact with KCC staff allowed the 109(b) plans of Kirkwood Community College to become more familiar to CCD staff. Numerous groups within the State of Colorado provided input into the application formulation activities. Statewide comment was sought on the needs within Colorado. The Joint Training Coordination Committee, which is active in Colorado, and the Department of Health Training Committee provided valuable input.

The staff at CCD continued to acquire 109(b) information directly from Washington EPA and pass the information on to the region throughout the application process. One CCD staff member commented that "CCD was the 109(b) trainer for EPA Region 8."

Some problems developed when the CCD plan was sent to the Colorado

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legislature for final approval. As required, CCD had obtained the sanction of the State Board of Junior Colleges and Vocational Training and the Committee on Higher Education, but the legislature, through the State Office of Budget and Planning, had begun implementing a policy of de-emphasizing centralized locations for various state functions. The State Office of Budget and Planning suggested that Durango, Colorado, would be a good location for the proposed training center. Through legislative lobbying, CCD was able to get themselves designated as the choice for the training facility, and with the eventual backing of the Joint Budget Committee got a statewide commitment for $250,000 in funding through the legislature.

Interestingly, the State of Colorado was instructed by the Washington EPA to place the Environmental Training Center on the priority list of the state. In order for the facility to be funded, the Governor had to approve the facility being placed at the top of the Colorado priority list. This was done.

In order to get the funds for the facility committed totally, a second $250,000 appropriation had to be passed by the State Legislature. After much discussion, this was accomplished. With the second $250,000 committed by the state, the size of the facility was increased about 200 square feet, instrumentation was upgraded, and a solar heating facility was added.

The proposal was submitted in the summer of 1975. As of late 1979 the design phase of the study had been funded, but the approval of the finalized facility design and awarding of the remaining 109(b) grant funds had not yet occurred. Unfortunately, costs of construction are increasing 1%+2% each month; thus, the final quality of the facility will be lessened slightly with each month's delay, unless other state funds are appropriated.

Utilization of 109(b) Funds

About $250,000 in 109(b) funds has been authorized for architectural/engineering fees. These funds have been utilized to develop detailed design plans for the Environmental Training Center. The development of the plans has occurred over about a two-year period, and upgrading is occurring to the present. In mid-1979, the "finalized" plans were presented to the U.S. EPA Region 8 office for review, comment, and acceptance. As of January 1980, the plans are still being reviewed.

Proposed Statewide Training Program

The proposed Statewide Environemntal Training Center will be operated by the current staff of the Water/wastewater Technology Program at the Red Rocks Campus of the Community College of Denver. Administrative guidance will be provided by the Director of the Division of Service and Health Occupations. The two current instructors are each certified in their respective disciplines of water and wastewater. In addition, each holds teaching credentials issued by the State Board for Community Colleges and Occupational Education.

Figure 6 illustrates the anticipated relationship between the U.S. EPA

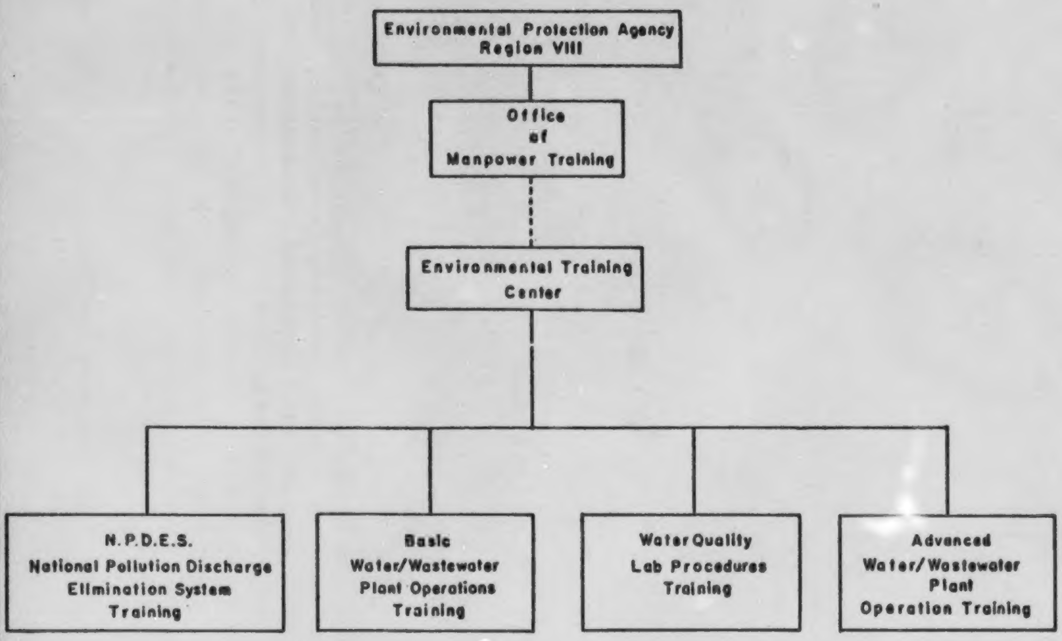

Environmental Protection Agency
Region VIII
Office
of
Manpower Training
Environmental Training
Center
N.P.D.E.S.
National Pollution Discharge
Elimination System
Training
Basic
Water/Wastewater
Plant Operations
Training
Water Quality
Lab Procedures
Training
Advanced
Water/Wastewater
Plant
Operation Training

Figure 6. Relationship between EPA and ETC.

and the Environmental Training Center as envisioned by CCD, while Figure 7 shows the interaction between the State of Colorado and the Center. Figure 8 is a more detailed composite of the two preceding charts showing anticipated organization and interaction of various agency levels. The planned organization with the Community College is shown in Figure 9.

Colorado has mandatory certification of Water and Wastewater Treatment Plant Operators. Four classes (A, B, C, and D) of operators are identified and specific requirements set. The certification classes of the operators correspond to the class to which the wastewater or water treatment plant has been assigned. As of 1981, Colorado will require that a fully certified operator be on duty during each shift at a given facility. As a partial requirement for certification, education may be substituted for work experience. Formal post-high school academic education, and Continuing Education Units (CEU's) are accepted at the discretion of the State Certification Board.

The Colorado Department of Health will oversee and work closely with the Environmental Training Center at CCD to insure that the needs of Colorado are met. The training facility is expected to be in nearly continuous operation after its startup. Trainers of the Department of Health who conduct standard training courses for the Water Quality Control Division of the health department will maintain offices at the ETC. The Health Division will coordinate the training functions of both groups.

In addition to continuing and expanding its degree programs, the Red Rock facility will be utilized in the presentation of seminars, short courses, and specialized workshops on an "as needed" basis. In 1975, it was determined that only 30 percent of the 509 wastewater operators in the state were certified, and with the more stringent regulations passed in 1977, the requirement for acquiring training was raised. The Colorado Department of Health, through its activities, will be conducting primarily upgrade or certification training, while the ETC will be preparing entry-level operators, and assisting the state in its upgrade efforts.

The plans for the ETC are still in a flexible state with the CCD staff working out various option packages for the facility. Any activities in the ETC are commented upon by a Joint Training Coordinating Committee composed of state, municipal, private, and technical representatives from varied statewide locations. The training of water and wastewater treatment operators in Colorado is expected to center on the ETC after its completion. At present, only about four other institutions offer any training in the wastewater line, and some of them are expected to abandon their programs when the ETC becomes operational.

Table 8 shows the job descriptions for projected ETC employees.

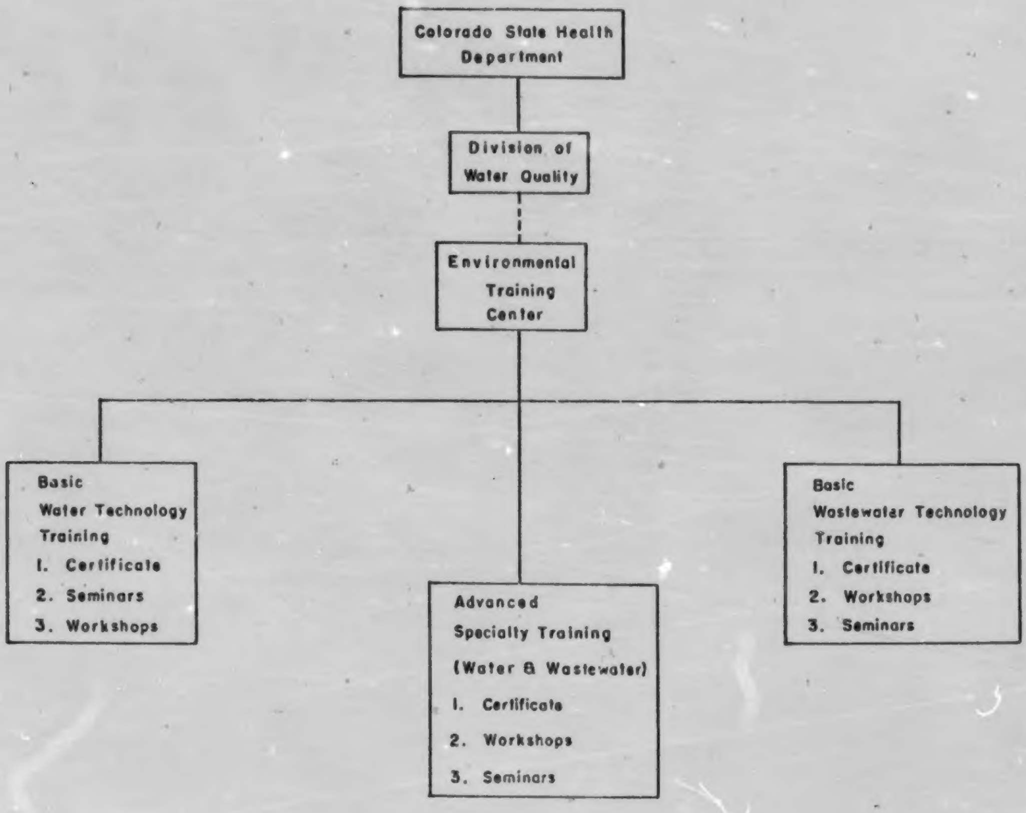

Colorado State Health Department
Division of Water Quality
Environmental Training Center
Basic Water Technology Training
1. Certificate
2. Seminars
3. Workshops
Advanced Specialty Training (Water & Wastewater)
1. Certificate
2. Workshops
3. Seminars
Basic Wastewater Technology Training
1. Certificate
2. Workshops
3. Seminars

Figure 7. Relationship of Colorado to ETC.

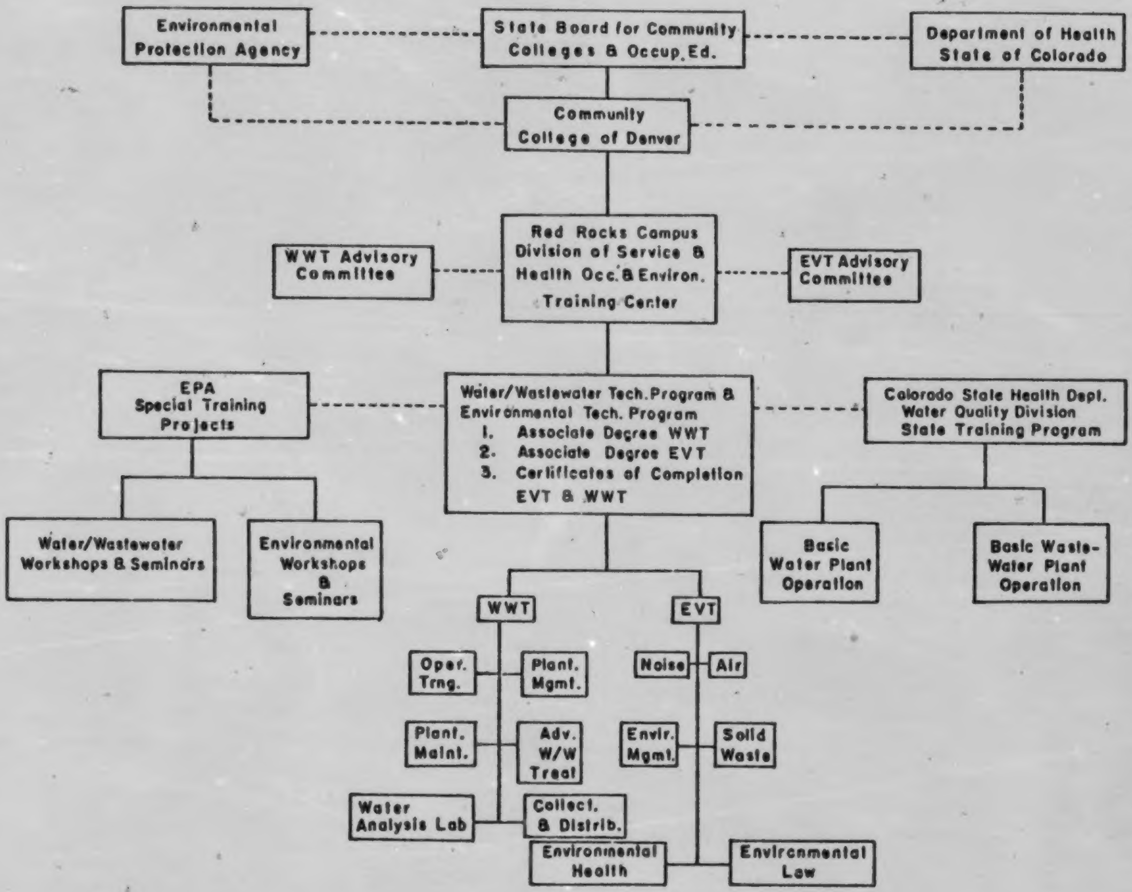
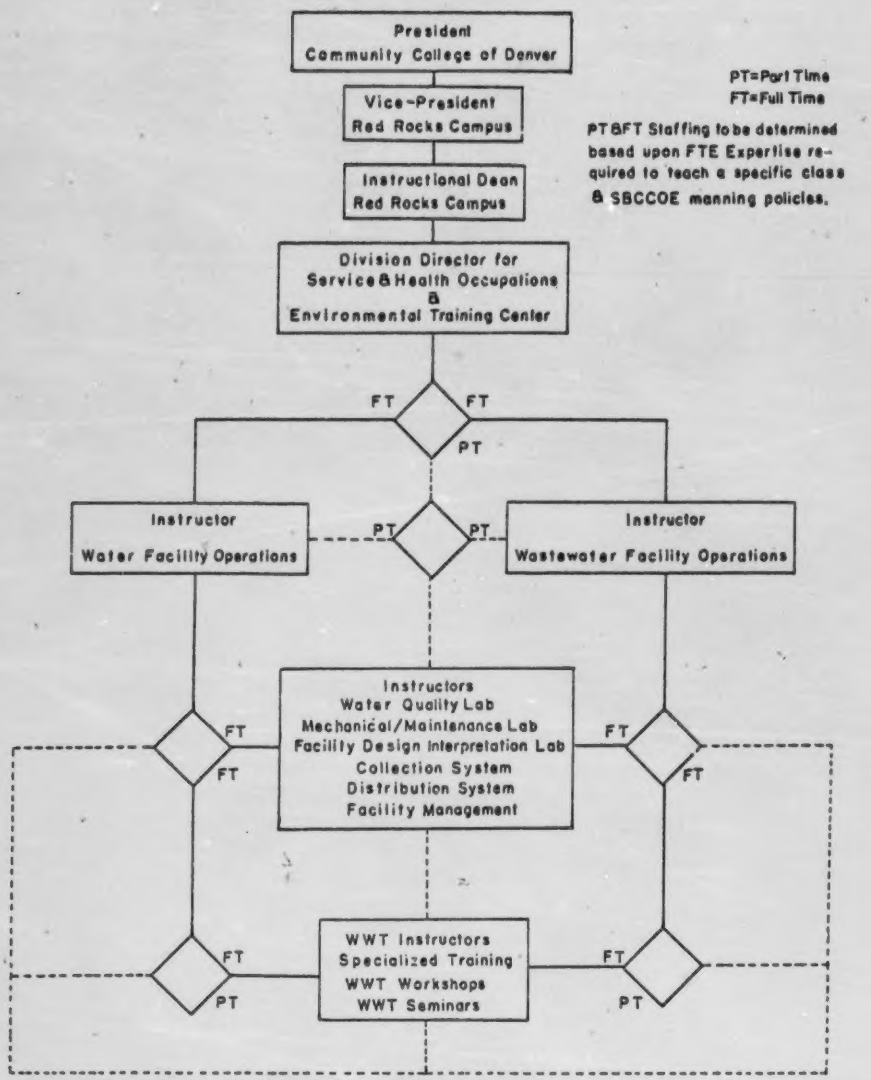

Environmental Protection Agency
State Board for Community Colleges & Occup. Ed.
Department of Health State of Colorado
Community College of Denver
WWT Advisory Committee
Red Rocks Campus Division of Service & Health Occ. & Environ. Training Center
EVT Advisory Committee
EPA Special Training Projects
Water/Wastewater Tech. Program & Environmental Tech. Program
1. Associate Degree WWT
2. Associate Degree EVT
3. Certificates of Completion EVT & WWT
Colorado State Health Dept. Water Quality Division State Training Program
Water/Wastewater Workshops & Seminars
Environmental Workshops & Seminars
Basic Water Plant Operation
Basic Waste-Water Plant Operation
WWT
EVT
Oper. Trng.
Plant. Mgmt.
Plant. Maint.
Adv. W/W Treat
Water Analysis Lab
Collect. & Distrib.
Noise
Air
Envir. Mgmt.
Solid Waste
Environmental Health
Environmental Law

Figure 8. Organization interrelation at various levels.


President
Community College of Denver
Vice-President
Red Rocks Campus
Instructional Dean
Red Rocks Campus
Division Director for
Service & Health Occupations
&
Environmental Training Center
FT
FT
PT
Instructor
Water Facility Operations
PT
PT
Instructor
Wastewater Facility Operations
Instructors
Water Quality Lab
Mechanical/Maintenance Lab
Facility Design Interpretation Lab
Collection System
Distribution System
Facility Management
FT
FT
FT
FT
WWT Instructors
Specialized Training
WWT Workshops
WWT Seminars
FT
PT
FT
PT

PT=Part Time
FT=Full Time

PT & FT Staffing to be determined based upon FTE Expertise required to teach a specific class & SBCCOE manning policies.

Dotted lines indicate interaction between Full & Part Time Instructors, due to changes in enrollment & class offerings. It allows for changing enrollment, & for providing necessary staffing for Workshops & Seminars, when needed.

Figure 9. Organization within Community College of Denver.

TABLE 8. JOB DESCRIPTIONS FOR COLORADO ETC

COLLEGE PRESIDENT:

Plan, guide, and evaluate the ongoing operations of the College in accordance with overall responsibility for College welfare and development. Establish overall operating objectives and medium and long-term goals for the institution. Oversee and evaluate the functions included under the Campus Presidents and the Vice-Presidents, Administration and Instructional Program Coordination and Planning. Represent College interests in legislative and related forums on a local, regional, state, and national level. Interact with the general public on all matters pertaining to College-wide policy and procedure, as appropriate. Guide the activities of the College Relations function in accordance with overall plans and objectives for the institution. Interview, supervise, and evaluate appropriate professional staff.

RED ROCKS CAMPUS VICE-PRESIDENT:

Oversee the direction of the instructional programs and related administrative activities on campus. Plan and establish goals and objectives for the campus consistent with those established College wide. Oversee the direction of the Registration and Student Support Services functions. Oversee the direction of the Instructional Support Programs function. Oversee the direction of campus staff development activities. Direct the Community Relations effort, including coordination of this function with College Relations office. Provide leadership in all areas involving the campus or its interaction with the College community. Develop and administer campus operating budgets. Interview, select and evaluate staff. Oversee the direction of campus programs and services evaluation. Coordinate the campus O&M function.

DEAN OF INSTRUCTION:

Direct campus instructional programming and administration activities consistent with College-wide goals and philosophy. Assure the compliance of all campus instructional programs with appropriate local, state, and federal regulatory agencies. Analyze the educational needs of students and the community relative to long-term program planning on campus. Direct the assigned instructional support program divisions. Develop and monitor all operating budgets in areas of assigned responsibility. Interview, recommend selection and evaluate all appropriate professional, technical and support staff. Direct the evaluation of instructional programs and services. Direct instructional program planning and development. Direct instructional and related staff development activities.

DIVISION DIRECTOR OF SERVICE & HEALTH OCCUPATIONS & ENVIRONMENTAL TRAINING CENTER:

Direct an assigned teaching or instructional support services division. Establish faculty work assignments and schedules. Develop and recommend curriculum and instructional support service changes and submit to the

(continued)

Dean of Instruction for approval. Plan and establish goals and objectives of the division consistent with College-wide educational programs and policies. Develop and implement class schedules. Conduct on-going instructional program evaluation activities. Develop and conduct instructional staff development programs. Coordinate program offerings with other divisions. Coordinate efforts with the Resource Development Officer to insure adequate participation of the College in grants promotion. Develop and administer the appropriate division budget. Interview, recommend for hire and evaluate appropriate faculty and staff. Develop recommendations for appropriate staff training programs. Develop and maintain close liaison with advisory committees in compliance with State Plan. Maintain liaison with appropriate SBCCOE staff and prepare reports required by the State Board.

INSTRUCTOR; WATER TECHNOLOGY:

Responsible for planning, developing, and teaching the curriculum for Water Plant Operator's Technology. Required to instruct in classroom and on a one-to-one basis in the water/wastewater self-paced lab. Should be able to package courses for individualized instruction in water treatment. Maintain appropriate records relating to student enrollment, equipment, and materials. Assist students in obtaining employment in water treatment plants in the State of Colorado. Perform water/wastewater student advising, and class scheduling. Develop and instruct special water treatment seminars and/or workshops. Assist the Division Director in coordinating the activities of the Environmental Training Center. Prepare and recommend to the Division Director class schedules for the water program in the Environmental Training Center. Coordinate special water treatment programs to be taught in the Environmental Training Center. Assist in the administration of an operating budget for the Environmental Training Center.

INSTRUCTOR; WASTEWATER TECHNOLOGY:

Responsible for planning, developing, and teaching the curriculum for Wastewater Plant Operations Technology. Required to instruct in classroom and on a one-to-one basis in the water/wastewater self-paced lab. Should be able to package courses for self-paced in wastewater treatment, maintain appropriate records relating to student enrollment, equipment, and materials. Assist students in obtaining employment in wastewater treatment plants in the State of Colorado. Perform Water/Wastewater student advising, and class scheduling. Develop and instruct special wastewater treatment seminars and/or workshops. Assist the Division Director of Service & Health Occupations & E.T.C. in coordinating the instructional activities for the Environmental Training Center. Propose and recommend to the Division Director class schedules for the Water/Wastewater Program in the Environmental Training Center. Assist in coordinating with the Colorado State Health Department and the Environmental Protection Agency Region VIII Workshops and/or Seminars to be held in the Environmental Training Center. Assist in the administration

(continued)

TABLE 8 (continued)

of an operating budget for the Environmental Training Center. Recommend to the Division Director operational goals and objectives for the Environmental Training Center. Represent the Water/Wastewater Program of CCD at local regional and national conferences as assigned. Submit to the Division Director periodic progress requests on the operation and function of the Environmental Training Center.

INSTRUCTOR; PART TIME WATER/WASTEWATER:

Responsible for preparing and teaching specialized courses in water and/or wastewater treatment technology. Maintains appropriate records relating to student enrollment, grades, and materials. Plans, develops, and instructs laboratory exercises in the water/wastewater labs when needed. Assists full-time water/wastewater instructors in developing and teaching specialized workshops and seminars in the Environmental Training Center. Responsible for administering college policy relating to all classroom activities required of an instructor.

SUPERINTENDENT OF BUILDINGS AND GROUNDS:

Administer preventive maintenance and safety programs for buildings, grounds and equipment. Plan and establish operational goals and objectives of the maintenance and operations function. Develop guidelines and regulations for campus security, parking and traffic regulations. Direct the activities of custodial services. Coordinate the inventory, shipping and receiving functions. Administer the maintenance and operating budget. Interview, select and evaluate supervisory and support staff. Develop and supervise building and system modifications and landscaping plans and modifications.

FLORIDA

Summary

The State of Florida has inaugurated a statewide training effort to be centered at a new facility located near the campus of the University of Florida in Gainesville, Florida. The facility, constructed primarily with state supplied funds and with a $250,000 109(b) grant, is called the Center for Training, Research, and Education for Environmental Occupations (TREEO). The Center is located in the S.W. Quadrant of Gainesville at 3900 S.W. 63rd Boulevard. The TREEO facility offers conferences, seminars, short courses, and workshops for personnel involved in water utilities, solid waste, and aerosol related activities. In addition, the staff is involved in developing curricula for the State of Florida wastewater and water operator certification programs.

History of Application for 109(b)

The 109(b) application in Florida was tied closely to the planned construction of the TREEO center. Various locations in Florida made pitches to the state legislators to have their area picked as the location for the TREEO facility; the University of Florida at Gainesville prevailed and was designated by the legislature as the custodian of the TREEO center. The facility was originally legislated in the 1974 budget; however, revenue short-falls delayed the availability of funds until 1975. In the initial funding recommendation, the facility cost was stated at $1,348,280. A condition of the funding by the legislature was that should Federal funds become available for such facility construction, the release of the $1,348,280 would be reduced by a like amount. However, inflation and Federal wage requirements related to the 109(b) funds brought about a slight down-grading of the building and a release from the state funding reduction requirement. Construction on the center started in May 1977, and occupancy occurred in December of 1978. As a result of the reduced effectiveness of the additional 109(b) grant monies and the rising costs associated with construction (the cost estimate was originally prepared in 1974; building was constructed in 1977-1978), changes had to be made in the building design. For example, the auditorium, which was originally to seat 300, was cut back to seat 172, and some additional work space was reduced.

The proposal and funding considerations for 109(b) funds were funneled through the state construction grants office to EPA Region 4. The EPA Region 4 personnel were cooperative and helpful in securing the grant funds.

Utilization of 109(b) Funds

The $250,000 of 109(b) funds was utilized primarily for building design and construction (see Figure 10, TREEO Center Plan). About $25,000 of the total was allocated to purchase of office and classroom furniture, typewriters, and other office equipment. Approximately $14,000 was spent on laboratory equipment. The TREEO center building is of modern poured-in-place concrete design. Energy saving features which have been made an integral part of the facility include the following: a floor approximately 3 feet below the surrounding grade, a pond adjacent to about 40 percent of the exterior walls (acts to moderate temperatures), a water-operated heat exchanger, and pond water supplied by the Gainesville-Alachua County Regional Utilities Board advanced wastewater treatment plant which is located across the street.

The TREEO facility does not incorporate a waste treatment unit within its walls, but the plant across the street will serve as an example facility for students as the need arises.

Statewide Training Program

At the present, the statewide training program in Florida is in its infancy so far as a centralized operation is concerned. The Florida Department of Environmental Regulation, the Florida Department of Education Division of Vocational Education, the community and junior colleges, the vocational schools, the university system (primarily at the TREEO center), and various organizations are each involved in providing educational experiences within the wastewater category. Each of the training entities now active in Florida recognize the need for a single entity to develop and coordinate the curricula available at various locations in the state, to serve as a resource center, and to provide special services (i.e., workshops, symposia, and seminars) on an as-needed basis. The goal of the TREEO center is to serve these needs.

In late 1979, there were 28 community colleges and at least 41 vocational-technical schools in Florida. Some wastewater courses are offered by a majority of the community colleges and by a few of the vocational schools. Most certification training within the state is done in community colleges and vocational schools.

The Florida Department of Environmental Regulations sets the educational requirements for water and wastewater operators in the state. The Department of Education acts as an advisor to the requirements, but in the end must also pass judgment on their validity if full state educational accreditation is to be received by the students. In addition, the state provides FTE funding to community and junior colleges and vocational schools. FTE funding currently cannot be paid to a university unless the courses are part of a four-year degree; thus, TREEO center is at a competitive disadvantage to the other institutions involved in operator training.

The State of Florida currently certifies wastewater treatment operators at A, B, C, and D levels with about 120 classroom hours each required for the A, B, and C levels. Three months on-the-job experience is required in the very basic D level. In addition, the applicant for a C certificate must have been working in a Florida WWTP for at least one year before taking the exam. The experience requirements at the B and A levels are at least

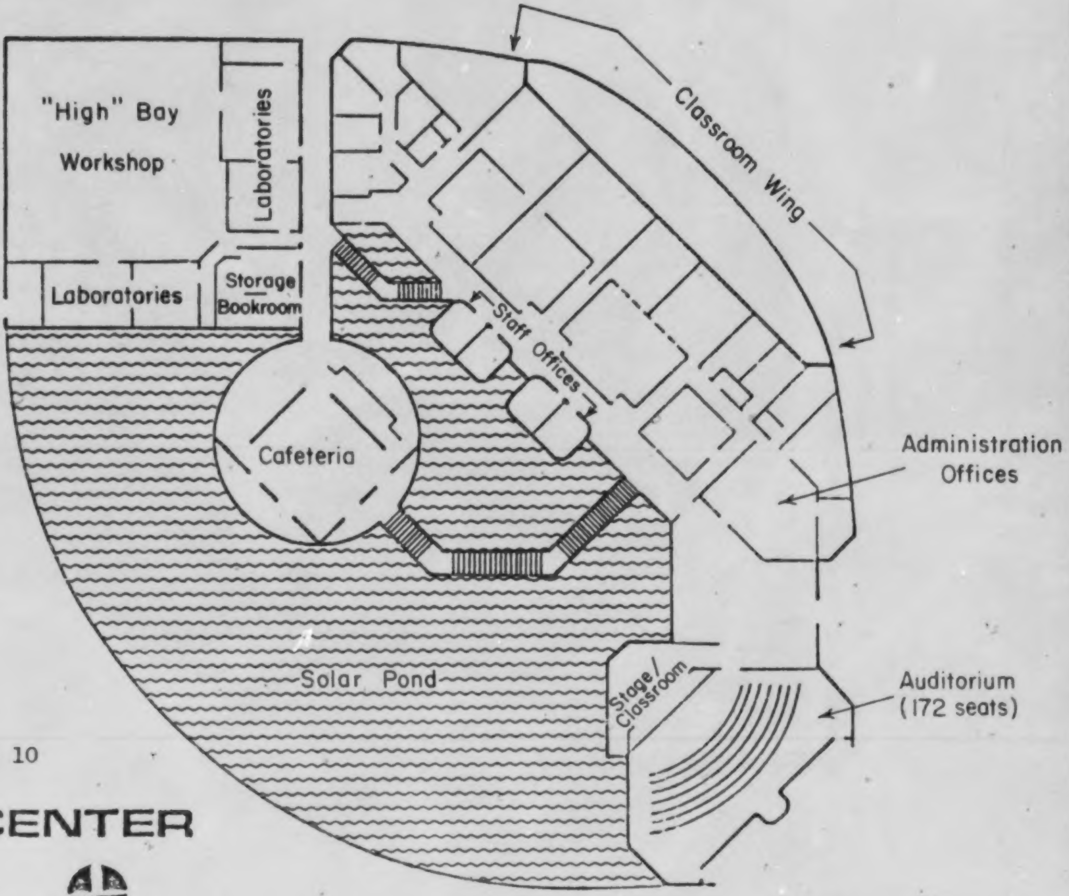

"High" Bay
Workshop
Laboratories
Laboratories
Storage
Bookroom
Classroom Wing
Staff Offices
Cafeteria
Administration
Offices
Solar Pond
Stage/
Classroom
Auditorium
(172 seats)

FIGURE 10

TREEO CENTER

SCALE:
1" = Approx. 48'

two years and four years, respectively. Courses are developed generally by part-time instructors and are approved on a case-by-case basis.

The TREEO center is the attempt of the State of Florida to centralize the environmental occupations training coordination in one entity. The specific training and education plans of the TREEO center relative to domestic wastewater treatment and to drinking water supply treatment include the following:

(1) Develop curricula
(2) Adopt, adapt and/or develop reference materials for students
(3) Adopt, adapt and/or develop instructional aids
(4) Provide training to existing operators
(5) Train instructors
(6) Provision of field instruction via a mobile laboratory and other arrangements is being considered
(7) Coordinate training activities throughout the state
(8) Provide for conferences, seminars, short-courses and workshops.

Currently, TREEO personnel are developing curricular materials which will lead into items 2, 3, 4 and 5. Political ramifications within the state make the coordination of training activities across the state very difficult to accomplish. Tradition in areas of program responsibilities, resistance to change, concern for maintaining local program control, and concern about possible competition coupled with the lack of operational funds and clear authority for the TREEO center to accomplish its goals have hampered the development of a truly statewide training program in Florida.

Of all the goals of the center, it has succeeded most admirably in the presentation of specialized training classes (item 8 above). About 18 conferences, workshops, seminars, or other types of programs are presented by the TREEO center. These activities utilize the center about 10 percent of the time. As of yet, continuing, ongoing certification training of wastewater treatment plant operators is not occurring at the TREEO center. Personnel are optimistic about beginning such activities in 1980.

A tentative proposal was drawn up in 1978 for possible funding under the amended P.L. 92-500 Section 109(b). The proposal included $122,000 for certification training of wastewater treatment operators with an additional $77,000 outlay for a mobile van facility and $75,000 for conferences, seminars, short courses and workshops. The total proposed budget for the last three quarters of the first fiscal year of the proposed plan was projected at $273,000. Revenue was projected at $116,000, with a $167,000 deficit proposed to be funded by 109(b) funds. The proposal was never submitted as an application for 109(b) funds. The TREEO center and its role is being reassessed by its personnel, the university, and the state.

ATTACHMENT I-A

FUNCTIONS OF TREEO FACILITY

Functions or Activities Within Realm of Training Facility	Planned (Yes or No)	Accomplished by (Year)	Expect to Achieve by (Year)
2-yr. associate degree	No		
1-yr. technical certificate	No		
Pre-service training	No		
Inservice training	Yes	On-going for many years 1975- at TREEO	Continuous
Considering on-site training (Treatment plant sites)	Yes		1981 forward
Research	Yes	1979	Continuous
Development of training materials	Yes		1980 forward
Dissemination of training materials	Yes	1979	Continuous
Instructor Development	Yes	1979	Continuous
Other: Program development and implementation to serve specific needs	Yes	On-going	Continuous

ATTACHMENT I-B

TREEO FACILITY USERS

	In-Service Training Number				
Personnel	1st half 79/80	78/79	77/78	76/77	75/76
Wastewater	163	379	264	359	221
Water Supply	284	370	949	130	109
Solid Waste	-	47	88	30	330
Air Pollution	-	139	-	16	93
Design	-	35	21	10	14
Other Fields not Listed	-	19	100	23	-

ATTACHMENT I-C

TREEO BUILDING SPECIFICATIONS

Room	Seating Capacity	Square Footage
Auditorium	172	2,741
Seminar	15	317
Flexible Meeting Room (1, 2 or 3 rooms)	20 35 18	397 691 360
Fixed Classrooms (4)		
(1)	25	510
(2)	25	511
(3)	25	511
(4)	25	510
Shop/Demo Area	None Assigned	3,854
Canteen		1,830

ATTACHMENT I-D

1978/79 OPERATING COSTS (Total Facility)

Administrative Personnel	$ 37,880
Teaching Personnel	6,425
Fringe Benefits	8,309
Utilities (1/2 year)	5,456
Consultants	9,469
Other: Clerical, student assistance, food services, supplies, travel, rentals, and miscellaneous	81,369
	148,908

1978/79 FUNDING SOURCES

Annual Operating Budget	138,822
Annual Income	144,600
Tuition	109,082
Other Sources	35,518

GRANTS AND CONTRACTS

Funding Source	Project Title or Description	Amount	Grant Period
Fla. Dept. of Education	Wastewater Objectives Development	20,000	2/3/78-11/15/79
Fla. Dept. of Education	Water Objectives Development	27,000	2/3/78-11/15/79
C.C. Community College	A & B Wastewater Course Development	17,100	2/15/79-3/31/80
EPA	C Wastewater Course Development	19,00	8/1/79-9/30/80

ATTACHMENT I-E

PROGRAM ADMINISTRATION, MANAGEMENT

	# Full Time	# Part Time	Education	When?
Director/Chairperson		1	Ph.D.	1978
Ass't Director/Chairperson	2		Ed.D. M.A.T. +	1975 1976
Clerical	2		2 yrs college High School	1977 1975

Other: Temporary instructors for workshops, short courses, seminars - the number varies as a function of the specific courses or programs.

PERCENT RESPONSIBILITIES - PERCENT TIME IN EACH AREA

	Administration	Instruction	Training Material Development	Program Planning	Other
Director/ Chairperson	25	10		15	
Ass't Director (2)	30	5	35	25	5
Instructor			100		
Clerical (2)	5		10		85

ATTACHMENT I-F

TREEO TRAINING PROGRAM ENROLLMENT

	1st half 79/80	78/79	77/78	76/77	75/76
Wastewater	163	379	264	359	221
Water Supply	384	370	949	130	109
Solid Waste	-	47	88	30	330
Air Pollution	-	139	-	16	93
Other: Problems, identification, supervision, time management		19	100	23	-

GEORGIA

Summary

The designated Statewide Training Facility is known as the Georgia Water and Wastewater Institute (GWWI) and is located at the West Georgia College (WGC) in Carrollton, Georgia. The Environmental Protection Division (EPD) of the Georgia Department of Natural Resources is the recipient of the 109(b) funds. The EPD oversees the state training program and administers its funds. Georgia has received its total allocation of $500,000 from the 109(b) program. The 109(b) grant to Georgia is being used to construct a 5,000 square foot building adjacent to the Carrollton wastewater treatment plant, which is located approximately one-half mile from WGC. The building will contain space for a laboratory, office, shop, classroom and snack/break room. An activated sludge, package waste treatment plant will be used in operator training as well as the Carrollton waste treatment plant which is adjacent to the site. A pilot scale water treatment plant will also be available on site for training purposes.

At present, the GWWI staff of three occupies offices at West Georgia College. Annual operating expenses for the training facility are provided by the EPD.

History of Application for 109(b)

The Georgia Environmental Protection Division began training classes in the form of short schools for operators in the 1930's. In 1974, a training facility that was expected to last three years was established at the South Georgia Vocational-Technical School in Americus, Georgia. The buildings at this location were old military structures and in 1976 the training center was forced to vacate due to condemnation. The EPD let it be known that a new location for the training center was being sought and received responses from several communities desiring to have the facility in their area. The EPD wanted to locate the facility at a college campus where space was available and access to a wastewater treatment plant existed. Carrollton was selected based on the presence of West Georgia College, the 5 MGD wastewater treatment plant, and a mileage analysis conducted by the EPD. The mileage analysis was conducted by calculating the distance that would have to be traveled to the various alternative sites by every fifth student that had received training during the preceding few years. Because of the density of waste treatment plants in northern Georgia, the training facility is not located in the geographical center of the state. Conveniently, Carrollton is within a short distance (80 miles) of Atlanta where the offices of the EPD are located.

The EPD became aware of the availability of 109(b) funds through the regional office of the U.S. EPA. With historic background in operator training and knowledge of the training needs of the state, the EPD was the logical choice as the recipient of the grant. Georgia concluded that a formal survey to determine the need for training was not necessary. No organizations other than the EPD were considered as potential 109(b) applicants. Initial contacts regarding the grant were made at the regional level in the U.S. EPA.

The EPD submitted a grant application for 109(b) funds late in 1975. Initially, $250,000 was requested to establish the training center in Carrollton. However, the original bids for construction of the training facility exceeded that amount and were rejected. In 1979, after an additional $250,000 became available to the states through the 109(b) program, the EPD submitted an amendment to its original grant, expanded the facility plan, and requested a total of $500,000. The grant was approved by the U.S. EPA and the training facility is now under construction with completion scheduled for March 1980. All grant applications were reviewed by the state clearinghouse prior to submission and found to be consistent with state goals, objectives, policies, plans, programs, and fiscal resources.

Utilization of 109(b) Funds

A plot plan for the building being constructed using the 109(b) funds is shown in Figure 11. The facility is located on one acre of land that was donated by the City of Carrollton. The adjacent Carrollton Water Pollution Control Plant has a capacity of 5 MGD. The package wastewater treatment plant (along with other mechanical equipment) has been donated by industrial and municipal benefactors and will be used to demonstrate both normal operation and plant upsets. The package plant has a capacity of 25,000 GPD when utilizing the contact stabilization process. Wastewater will be gravity fed after preliminary treatment at the Carrollton WPCP through 200 feet of pipe to the package plant. Activated sludge will be available through a 100 foot extension to a force main. The ready availability of activated sludge will allow rapid startup of the package plant after being shut down between courses. All liquid and air flows into the plant will be metered. Advanced waste treatment facilities will follow secondary treatment. Initially, the advanced treatment will consist only of pressure and gravity filtration. Other treatment units, such as carbon adsorption, will be added as additional training becomes necessary.

A functional water treatment plant is being constructed on the site using a supplemental grant provided by the Appalachian Regional Commission. The effluents and waste sludge from the water and wastewater treatment plants will be discharged to the existing sewer for treatment in the Carrollton WPCP.

The original floor plan for the building with the added modifications is shown in Figure 12. An additional 1,000 square feet have been added to the building floor plan. The modifications consist of a second classroom, a snack/break room for the trainees, office, additional parking, and a shelter for the treatment plant. Approximately $70,000 worth of equipment, audio-visual aids, instruments, supplies and furniture will be transferred to the completed facility from West Georgia College.

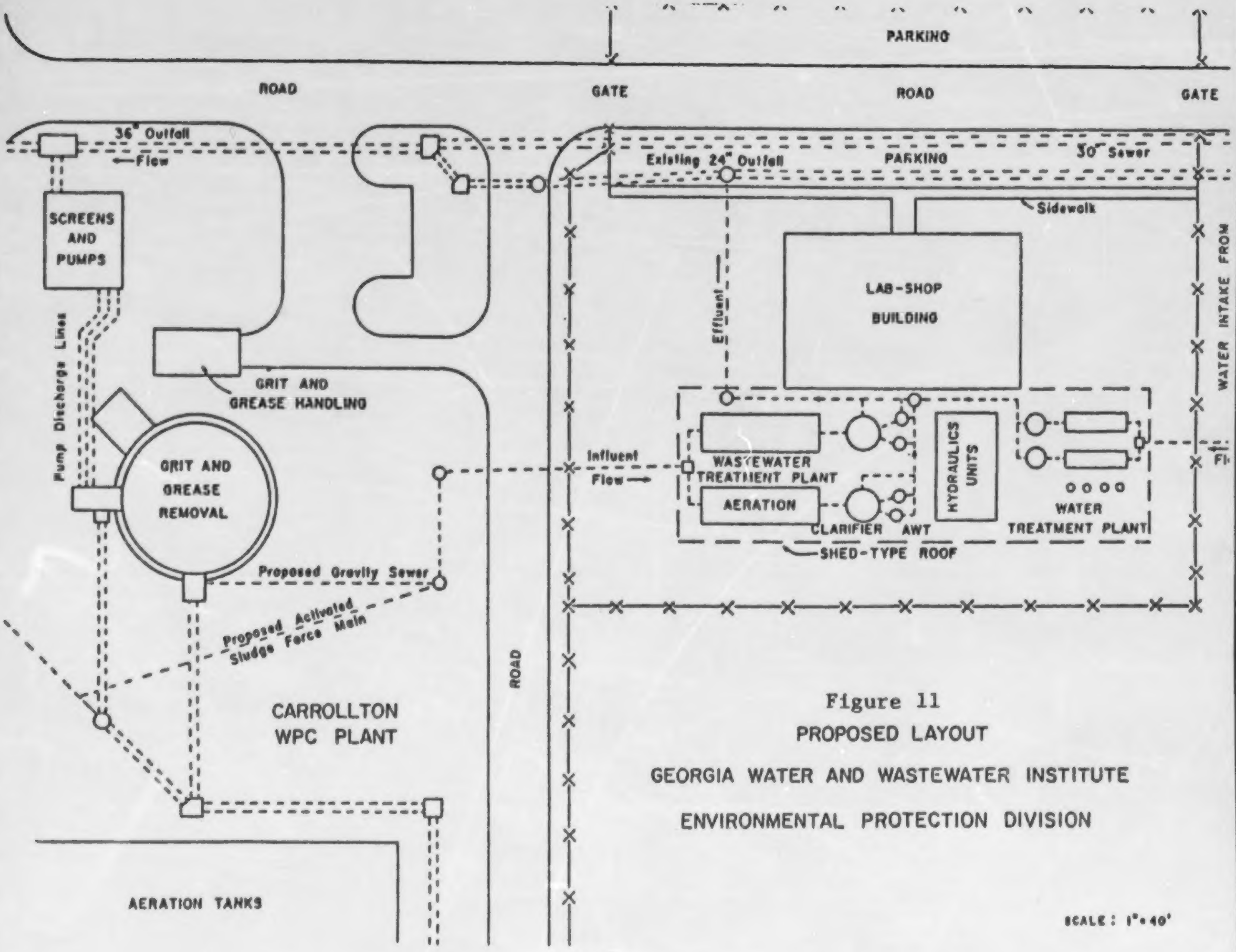

PARKING
ROAD
GATE
ROAD
GATE
36" Outfall
Flow
Existing 24" Outfall
PARKING
30" Sewer
Sidewalk
SCREENS AND PUMPS
Pump Discharge Lines
GRIT AND GREASE HANDLING
GRIT AND GREASE REMOVAL
Effluent
LAB-SHOP BUILDING
WATER INTAKE FROM
Influent Flow
WASTEWATER TREATMENT PLANT
AERATION
CLARIFIER
AWT
HYDRAULICS UNITS
WATER TREATMENT PLANT
SHED-TYPE ROOF
Proposed Gravity Sewer
Proposed Activated Sludge Force Main
CARROLLTON WPC PLANT
ROAD
AERATION TANKS
SCALE: 1"=40'

Figure 11
PROPOSED LAYOUT
GEORGIA WATER AND WASTEWATER INSTITUTE
ENVIRONMENTAL PROTECTION DIVISION

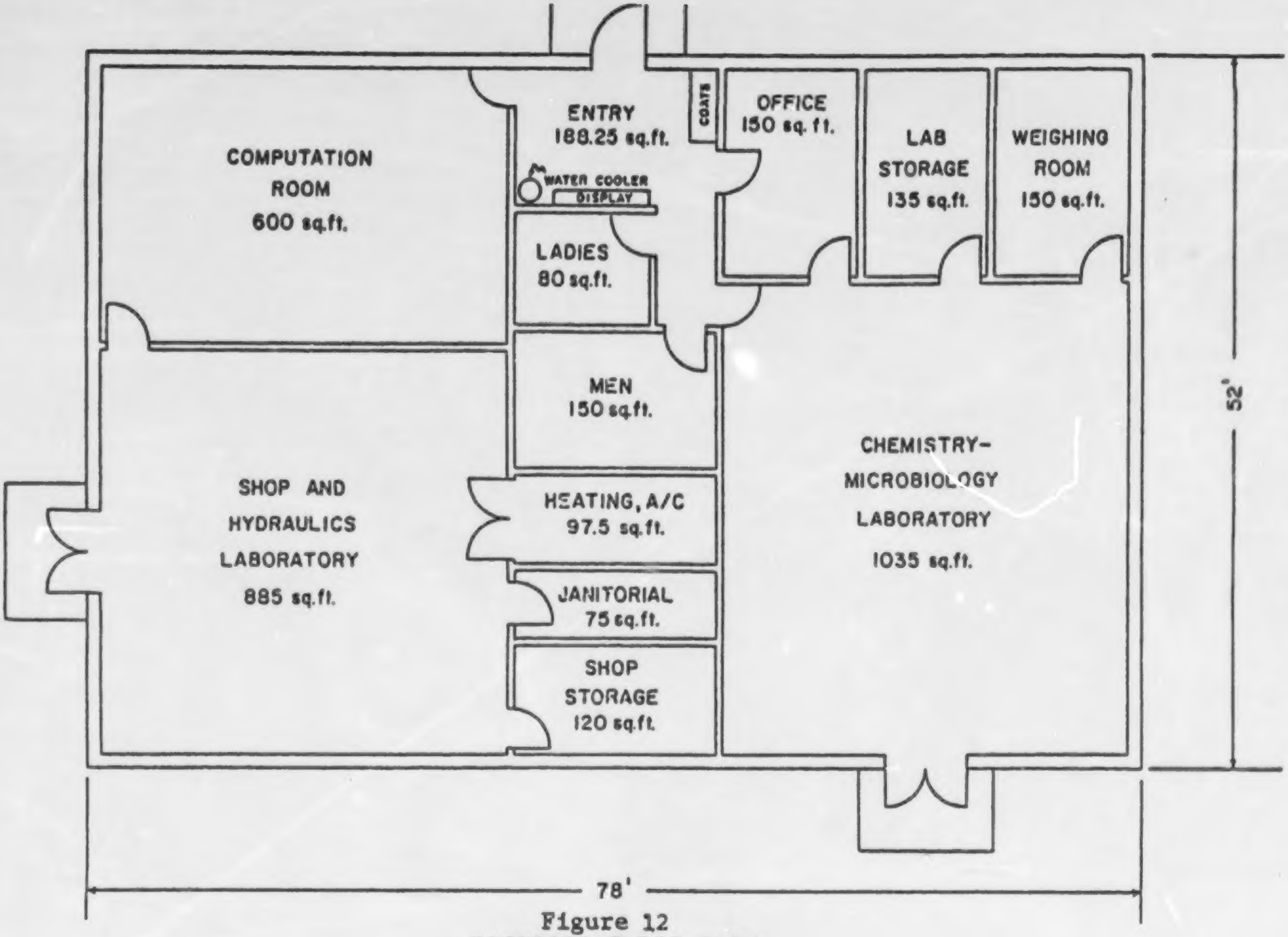

ENTRY
188.25 sq.ft.
COATS
OFFICE
150 sq.ft.
LAB
STORAGE
135 sq.ft.
WEIGHING
ROOM
150 sq.ft.
COMPUTATION
ROOM
600 sq.ft.
WATER COOLER
DISPLAY
LADIES
80 sq.ft.
MEN
150 sq.ft.
CHEMISTRY-
MICROBIOLOGY
LABORATORY
1035 sq.ft.
SHOP AND
HYDRAULICS
LABORATORY
885 sq.ft.
HEATING, A/C
97.5 sq.ft.
JANITORIAL
75 sq.ft.
SHOP
STORAGE
120 sq.ft.
52'
78'

Figure 12
PROPOSED FLOOR PLAN
GEORGIA WATER AND WASTEWATER INSTITUTE
ENVIRONMENTAL PROTECTION DIVISION
GEORGIA DEPARTMENT OF NATURAL RESOURCES

Statewide Training Program

The GWWI employs two full-time instructors, one of whom also functions as the coordinator, and a clerical person. The instructors hold B.S. degrees in biology and chemistry. Both individuals have teaching experience and are certified as Class I operators in the state's certification program. This combination of theoretical and practical knowledge of the operation of treatment plants has proven to be an effective combination of talents.

Because all of the students attending the training program are currently operators in treatment plants, course work is presented in a modular format with courses lasting from 1-5 days (average 3-4). The curriculum was developed by the EPD based on past experience and its knowledge of the training needs of the state. Approximately 25 courses are taught (see Table 9), with 10-12 of the titles being used most frequently. Feedback from the students and plant supervisors provides input into the improvement of existing courses and development of new courses. The students receive Continuing Education Units (CEU's) for satisfactory performance in their coursework.

A workbook that was prepared for the Georgia Water Quality Control Board by a private consultant is based on the following texts: Manual of Instruction for Sewage Treatment Plant Operators, New York State Department of Health, Albany, New York; Operation at Wastewater Treatment Plants, Manual of Practice No. 11, Water Pollution Control Federation, Washington, D.C.; and Simplified Laboratory Procedures for Wastewater Examination, Publication No. 18, Water Pollution Control Federation, Washington, D.C. The workbook is most used for those courses designed for Class III and Class IV operators and serves as a review for Class I and Class II operators. Handouts have been prepared and are used for the advanced classes. Other training aids currently used include films, slides, and overhead projection materials. At the end of each course, the students are requested to evaluate the training with respect to: course material, course presentation, value of training aids, and the training facilities. In addition, the students are requested to provide their opinions, remarks and recommendations regarding the course.

The annual enrollment in the training facility has increased from about 450 at its inception to about 60 in 1979. All the students are employed in the wastewater or water treatment field and are considered part time. Approximately two-thirds of the students are wastewater treatment personnel and the remainder are in the water treatment area. Students include environmental systems operators, regulatory personnel, and consultants. Anyone with a need for the training can register and there are no charges for the courses. Students are housed in the dormitories on the WGC campus and have access to the available facilities.

The annual operating budget of the facility is $75,000 which is provided by the Georgia Environmental Protection Division. Approximately 75 percent of the operating budget is currently allocated to paying the salaries of the two instructors and clerical staff.

The training program is required by the state to provide courses approved

TABLE 9. COURSES TAUGHT AT THE GEORGIA WATER AND WASTEWATER INSTITUTE

Program Description:

Basic Wastewater-Introduction to Wastewater Treatment Plant operations and maintenance. Pre and Post tests administered to gauge comprehension. Primarily chalkboard lecture, with overheads, films and slides as training aids.

Basic Surface Water-Introduction to Surface Water (Stream and Lake) Treatment Plant operations and maintenance. Pre and Post tests administered to gauge comprehension. Primarily chalkboard lecture, with overheads, films and slides as training aids.

Advanced Wastewater-Concentrated study of wastewater treatment plant operations and maintenance. Emphasis on application of math and chemistry to operations, troubleshooting, and design. Primarily group discussion of case histories, with overheads, films and slides as training aids.

Advanced Surface Water-Concentrated study of Surface Water Treatment Plant operations and maintenance. Emphasis on application of math and chemistry to operations, troubleshooting, and design. Primarily group discussions of case histories, with overheads, films and slides as training aids.

Package Aeration Plants-Concentrated study of small aerated wastewater treatment plant operations and maintenance. Emphasis on daily operations, record-keeping, and troubleshooting. Primarily group discussions of case histories, programmed learning devices, with overheads, films, slides and tapes as training aids.

Activated Sludge Workshop-Concentrated study of process control of medium and large aerated wastewater treatment plant operations and maintenance. Emphasis on shift operations, record-keeping, and troubleshooting. Primarily group discussions of case histories, application of simplified lab procedures, with overheads, films, slides and tapes as training aids.

Trickling Filter Workshop-Concentrated study of medium and large trickling filter wastewater treatment plant operations and maintenance. Emphasis on daily operations, record-keeping, and troubleshooting. Primarily group discussions of case histories, with overheads and slides as training aids.

Sludge Treatment Workshop-Concentrated study of wastewater sludge treatment and disposal. Emphasis on process control of anaerobic sludge digestion with simplified lab procedures. Also includes discussion of chemical conditioning, vacuum filters, filter presses, centrifuges, etc. Films and overheads as training aids.

(continued)

TABLE 9 (continued)

Program Description:

Chemical-Physical Process in Wastewater Treatment-Concentrated study of nutrient and metal removal at the wastewater treatment plant. Emphasis on chemical coagulation and precipitation, including jar tests. Overheads as training aids.

Chlorination Workshop-Concentrated study of the use of chlorine and hypochlorites in water and wastewater treatment. Emphasis is placed on the chemistry of chlorine in water, methods of disinfection, quantitative and qualitative analyses for residual chlorine and handling chlorine safety. Transparencies, slides, films, and chlorination equipment are used as training aids.

Fluoridation Workshop-Concentrated study of the use of fluoridation in water treatment. Emphasis is placed on the beneficial effects of fluoride quantitative and qualitative analyses for fluoride, proper handling and storage of fluoride compounds, and calculations for proper dosages. Slide/cassette presentations and fluoridation analytical equipment are used as training aids.

Lab Analysis in Wastewater Treatment-Practical laboratory experience in chemical and bacteriological analysis of drinking water. Films and tape/slide presentations as training aids.

Pump Maintenance-Practical experience on preventive maintenance, troubleshooting and repair. Emphasis on centrifugal pumps. Films and tape/slide presentations as training aids.

Instrumentation Maintenance-Practical experience on preventive maintenance, troubleshooting and repair. Emphasis on pneumatic and electronic instruments and controls. Films and simulators as training aids.

Water Distribution Course-Practical experience in Water Distribution concentrating on pipe, appurtenances, maintenance, disinfection procedures, cross connections, hydraulics of pumping, and effects of storage. Films and tape/slide presentations as training aids.

Groundwater-Introduction to Groundwater (Well and Spring) Treatment plant operations and maintenance. Pre and post tests administered to gauge comprehension. Primarily chalkboard lecture, with overheads, films, and slides as training aids.

Troubleshooting O & M at Small Municipal Treatment Plants-Practical approach to solving small treatment plant problems. Primarily intended for preparing regulatory agency personnel for carrying out O & M inspections. Emphasis on groundwater systems, ponds, package plants and oxidation ditches. Tape/slide presentations with overheads and some chalkboard lectures.

(continued)

TABLE 9 (continued)

Program Description:

Wastewater Collection Systems-Practical experience in wastewater collection concentrating on components of the system, maintenance, operation, mathematics, hydraulics, and safety. Films and tape/slide presentations as training aids.

Pond Treatment Workshop-Concentrated study of wastewater stabilization pond treatment operations and maintenance. Emphasis on facultative pond o & m, troubleshooting, and upgrading removal efficiencies through intermittent sand filtration. Primarily group discussions with printed material and overheads as training aids.

Innovations in Fixed Media Wastewater Treatment-Concentrated study of plastics application to fixed media treatment. Emphasis on carbonaceous and nitrogenous BOD removal with random fill and rigid module plastic media fixed film reactors. Also, introduction to rotating biological contactors as wastewater treatment devices. Primarily manufacturer rep presentations, with printed matter and slides as training aids.

Advanced Groundwater-Concentrated study of Groundwater Treatment Plant operations and maintenance. Emphasis on application of math and chemistry to operations, troubleshooting, and design. Primarily group discussions of case histories, with overheads, films, and slides as training aids.

Stream Monitoring-Concentrated study of stream ecology. Practical experience in sampling receiving streams and analyzing physical, chemical and biological characteristics. Emphasis on waste assimilation, stream self-purification. Films, chalkboard, sampling and analytical equipment are used as training aids.

Safe Drinking Water Act Seminar-Explanation of the rules and regulations that govern the production of a safe, aesthetic drinking water. Emphasis is placed on bacteriological testing and turbidity monitoring. Primarily lecture and discussion, with slides, cassettes, and AWWA and State of Georgia publications used as training aids.

for the preparation for state certification exams. The coursework provided by the GWWT is coordinated with the State Certification Board, the Georgia Environmental Protection Division, and the Training Committee of the Georgia Waste and Pollution Control Commission.

IOWA

Summary

The Cedar Rapids Wastewater Training Center (WTC) was the first of the 109(b) facilities funded in the country. Located on the northern periphery of the Kirkwood Community College campus, the school works closely with the Iowa Department of Environmental Quality.

Iowa used its first 109(b) grant to build a pilot wastewater treatment facility of 15,000 gallons per day capacity. Prior to submission of the grant application, Kirkwood documented the various types of sewage treatment being practiced in the Midwest and incorporated them into the pilot plant design. Presently, an addition to the pilot plant and a new building are being constructed using 109(b) money; these buildings will house classrooms, laboratory space, and staff offices.

History of Application for 109(b)

Because the Cedar Rapids facility was the first in the country to be funded under the 109(b) program, the application "process" was in its formative stage. For example, Cedar Rapids was originally informed to design its facility for a $1 million funding level; this level was reduced in the succeeding three months to $500,000 and finally to $250,000.

The State of Iowa has been training operators since 1920. Prior to the advent of 109(b), Kirkwood had Manpower Development Training Act courses. The present 109(b) facility application process began in 1973 with a feasibility study by J-Tec Associates, Inc. of Cedar Rapids.

One of the most significant problems in the 109(b) process was location of the proposed facility. Certain non-wastewater oriented staff at Kirkwood Community College were not enthusiastic about the proposed location, though the location - parallel to the school in view of the major access road - was the most logical from the engineering standpoint. The image of "a toilet in the front yard" of the college was difficult to dispel.

No formal needs survey was performed by Kirkwood prior to the application process, but informal discussions were held with both EPA Region VII and the Iowa Department of Environmental Quality (IDEQ). The only legal constraint affecting final selection of Kirkwood was the potential discharge to surface waters, and this necessity was avoided through design of the pilot facility to discharge to the existing sewage line.

Utilization of 109(b) Funds

As noted, the existing 15,000 g/day pilot plant was the first phase of 109(b) grant utilization. The processes in the pilot plant include:

- Trickling filter
- Activated sludge
- Post secondary
- Chemical addition and sand filtration
- Rotating biological contactor.

The pilot plant features the capability to balance and disrupt normal operating processes as a troubleshooting and problem-solving teaching mechanism. All sewage originates from Kirkwood Community College, and all treated effluent is discharged to the Cedar Rapids collection system.

Two new buildings are being constructed with additional 109(b) money. Addition No. 1 to the pilot plant contains 480 sq ft, and will have additional equipment for the pilot plant. The free-standing building adjacent to the pilot plant will contain laboratories, classrooms and staff offices which will comprise slightly more than 4,800 additional square feet. The new classroom space will allow space presently being employed as a classroom in the pilot plant to be utilized as additional laboratory facilities.

Statewide Training Program

Until 1975, the WTC at Kirkwood employed a mobile van (property of the U.S. Army) for its in-service training programs. Presently, utilizing existing facilities and those available at Kirkwood, two classrooms with a seating capacity of 50, and three laboratories are available.

The Learning Resource Center at Kirkwood contains approximately 43,670 documents; 214 of those documents directly relate to water and wastewater technology. Kirkwood maintains both audio and visual telecommunications, with both receiving and transmitting (closed circuit) capabilities, as well as studio facilities.

Presently available staff offices total two, with six satellite offices available. Table 10 displays the program administration and management, as well as educational backgrounds. Table 11 indicates relative percent of time spent by staff in functional areas of the WTC.

Enrollment at the WTC has grown at a steady rate since its inception, but the registration climbed more than 60 percent in the 1978/1979 enrollment period (see Table 12). The reasons for the dramatic increase in full-time (1 year) enrollment are:

- Demand for STP operators exceeds supply;
- Success of the Kirkwood WTC;
- Increasing attractiveness of the skills-oriented WTC program to degreed entrants.

TABLE 10

PROGRAM ADMINISTRATION, MANAGEMENT AND STAFFING

	# Full Time	# Part Time	Education	# Personnel Additions	When?
a. Director/ Chairperson	1		MA-Sanitary Engineering	Reduction	1979
b. Ass't Director/ Chairperson					
c. Adm. Assistant		1			
d. Coordinators		1			
e. Advisor		1			
f. Instructor	2	3	3 - BS Chemistry 1 - BS Microbiology		
g. Lab Director					
h. Lab Assistant					
i. Maintenance					
j. Clerical					
k. Other					

TABLE 11

STAFF RESPONSIBILITIES - PERCENT TIME IN EACH AREA

	Administration	Instruction	Training Material Development	Program Planning	Recruitment	Other
a. Director/ Chairperson						
b. Ass't Director						
c. Adm. Assistant	50	50				
d. Coordinator	25	75				
e. Advisor	5					
f. Instructor	0	100				
g. Lab Director						
h. Lab Assistant						
i. Maintenance						
j. Clerical	100					

In addition to the full-time one year program, the in-service training in the field far exceeds that expected of the WTC staff. The training center staff conducted over 14,000 student contact hours in 1978. In 1979, workshops were conducted by assessing operator needs transmitted to the center by operators, supervisors, and public works directors.

TABLE 12

FACILITY USERS

	Pre-Service Training Number					In-Service Training Number				
Personnel	1979	1978	1977	1976	1975	1979	1978	1977	1976	1975
Wastewater/Water Supply	30	18	16	12	9		900	800	800	600

ATTACHMENT I - IOWA

RATIONALE

The Kirkwood Community College Water and Wastewater Training Center developed a competency-based program for training certified water and wastewater operators. The purpose of this survey was to establish a list of the tasks which existing water/wastewater treatment plant operators perform in Iowa. Those tasks which grade level I, II, and III (I being entry level) operators identified in the survey as being tasks performed on a regular basis, serve as the competencies to be taught in the water/wastewater training program at Kirkwood.

OBJECTIVES

The overall purpose of this project was to develop a competency-based curriculum to accommodate a part-time program and a full-time program in water and wastewater treatment plant operations.

The specific objectives include:

(1) Identification of competency levels necessary to enter as a Grade Two plant operator.

(2) Establish a competency-based guide for developing a program which is flexible enough to accommodate part-time and full-time students.

(3) Develop competency-based curriculum guides that are flexible enough to be adopted to group or self-paced instruction methodology.

(4) Examine and refine the existing curriculum structure and materials.

The survey tested 651 total tasks related to six treatment plant operations. Plant operators from all over the state of Iowa identified 439 tasks which 25 percent or more Grade II operators performed.

The survey provided the following information:

(1) The existing Kirkwood water/wastewater program provided training for 88.8 percent of the 449 tasks significant to plant operation.

(2) Appropriate revision should be made to establish a total competency-based program flexible enough to provide part-time and full-time programs.

(3) The revised water/wastewater program is more efficient and effective than the former program. The revised program addresses 98 percent of the 439 tasks.

(4) Very few distinctions could be made concerning the tasks done by different grade level operators.

(5) Few distinctions could be made to differentiate between the tasks performed by operators and administrators.

(6) The survey did identify specific job task compentencies necessary for each of the six areas surveyed.

(7) Grade II operators tended to perform a greater number of the total tasks more often than either Grade I or Grade III operators.

(8) A greater number of Grade II operators exist than Grade I or Grade III operators.

MISSOURI

Summary

The Water and Wastewater Technical School (WWTS) is located on 245 acres of rolling hills in Southwest Missouri. It is situated on State Highway D, 2-1/2 miles east of U.S. Highway 71, 5 miles south of Neosho, the county seat of Newton County.

The buildings which house the classrooms, lecture halls, laboratories, academic and administrative offices number thirty. All the structures, except the new State Training Center Laboratory, were part of World War II vintage Fort Crowder. Available instructional equipment covers each phase of the water and wastewater industries including pipe, pumps, meters, gauges, sewer tapping equipment and treatment plant models. Much of the equipment is donated by the wastewater industry.

The WWTS maintains cooperative programs with nearby Crowder College and Missouri Southern State College leading to Associate Degree and Baccalaureate Degree programs to prepare students for employment in the environmental health, public health, and sanitation fields. In addition to the basic 48-week course taught at WWTS, the school conducts numerous short and special courses.

History of Application for 109(b)

The WWTS in Neosho takes pride in twenty years of continuous operation and the fact that it is the only fully accredited operator training school for both water and wastewater operators. Training in Neosho antedates Public Law 92-500 and Section 109(b). The WWTS perceived 109(b) as an ideal adjunct to its ongoing programs and as a means to provide much needed improvements to the WWTS including a classroom building with study area, auditorium, laboratory and a 0.025 MGD WTP.

The WWTS initially became aware of the 109(b) program through the Regional Office of EPA and made a preliminary contact for the grant application with U.S. EPA. According to Dr. Ronald F. Layton, President of WWTS, the Regional Office (VII) of EPA at the time knew little of the procedures necessary for application. Dr. Layton utilized his personal contacts within Washington EPA hierarchy to initiate the process.

A formal needs survey was carried out by the WWTS through and with the assistance of the Missouri Department of Natural Resources, the University of Missouri, the Water Pollution Control Association (Missouri Chapter) and the Missouri Water and Sewerage Contractors Association. The application was approved October 17, 1976.

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Utilization of 109(b) Funds

The funds for the State Training Center have been intended for design and construction of improvements to the Neosho WWTS including classrooms with a study area, auditorium and laboratory space and a 0.025 MGD racetrack type waste treatment plant. A 10,600 square foot building was recently completed at a total expenditure of 109(b) funds of $230,000. As of late November, 1979, the new structure was distinctly under-utilized because lab equipment is being purchased under the second $250,000.

A site has been chosen for the treatment facility and ground will be broken after the second $250,000 application has been utilized. At present, WWTS students' actual experience with sewage treatment operations is limited to site visits to the nearby municipal STP and students have the operational maintenance responsibility for an activated sludge system which serves the student housing complex, which is equipped with land application for final effluent discharge.

Statewide Training Program

Although designated as the statewide training center for Missouri, the WWTS, due to its longevity and its location, projects the image of a regionally and, in certain aspects, a nationally-oriented facility. The location of the school in the hub of the four-state region which encompasses Missouri, Kansas, Arkansas and Oklahoma, allows easy regional utilization.

The WWTS maintains a yearly resident enrollment of approximately 80 students. Total yearly enrollment, including the one-year program 12-week advanced program and the special short courses, numbers 2,000 students. Table 13 contains an approximate breakdown of facility users from 1975 to 1979.

Fourteen classrooms provide 15,000 square feet of space with a seating capacity for 800 students. Two existing laboratories comprise 2,000 square feet in area and can accommodate 50 students. The Learning Resource Center contains approximately 3,000 square feet of space and offers a full array of printed material, audio-visual material and equipment, as well as student work centers. WWTS inherited all the training materials from the old EPA Office of Solid Waste Management Program (OSWMP) and uses this material as part of the basic curriculum. WWTS maintains both audio and visual tele-communications capabilities and, though the existing studio space is limited, excellent audio-visual capability exists.

There are 14 full-time faculty at the WWTS and six adjunct instructors. Staff offices total 22 and comprise a total square footage of 10,000 feet. Table 14 gives some overview of available WWTS staff, and Table 15 indicates staff responsibilities.

As was mentioned in Section 1, an impressive array of water and wastewater equipment, including many cut-away models, is available for "hands-on" instruction. Equipment is donated by the water supply and wastewater community. Total value of donated equipment is estimated at $325,000.

TABLE 13

FACILITY USERS

	Pre-Service Training Number					In-Service Training Number				
	1979	1978	1977	1976	1975	1979	1978	1977	1976	1975
Wastewater										
Environmental Systems Operators (ESO)	100	105	125	130	167	800	701	604	304	207
Trainers (T)	2	3	1	0	2	8	6	3	2	2
Regulatory Personnel (RP)	1	0	0	0	1	2	1	1	1	1
Consultants (C)	0	0	1	4	5	10	5	0	1	1
Water Supply										
ESO	100	105	125	130	167	800	703	514	308	192
T	2	3	1	0	2	4	4	4	4	2
RP	1	0	0	0	1	1	1	1	1	2
C	0	0	1	4	5	10	0	1	5	0
Solid Waste										
ESO	100	105	125	130	167	Not available				
Laboratory										
ESO	100	105	125	130	167	641	314	105	67	20
Design										
ESO	100	105	125	130	156	Not available				
Operations										
ESO	100	105	125	130	167	Not available				

TABLE 14

PROGRAM ADMINISTRATION, MANAGEMENT AND STAFFING

	# Full Time	# Part Time	Education	# Personnel Additions	When?
Director/ Chairperson	1	0	PhD	None	
Ass't Director/ Chairperson					
Adm. Assistant	1	0		None	
Coordinators					
Advisor					
Instructor	11	2	PhD, P.E. B.S., M.S.	2	1980
Lab Director	1		B.S.	None	
Lab Assistant	1		B.S.	None	
Maintenance	4	3			
Clerical	5	1		None	
Other	1				

TABLE 15

STAFF RESPONSIBILITIES - PERCENT TIME IN EACH AREA

	Adminis-tration	Instruction	Training Material Development	Program Planning	Recruit-ment	Other
Director/ Chairperson	53	20	10	15	2	
Ass't Director						
Adm. Assistant	50	0	10	20	20	
Coordinator						
Advisor						
Instructor	0	80	10	5	5	
Lab Director						
Lab Assistant	2	70	20	8		
Maintenance	20	5	0	0	0	75
Clerical	0	0	20	20	20	40

Operating costs for the total facility at Neosho for 1979 is estimated to be $1,156,000. Projected capital costs for 1980 for the WWTS total $250,000 for construction and $50,000 for equipment. Table 16 displays a history of operating costs for the facility since 1975.

TABLE 16

OPERATING COSTS (TOTAL FACILITY)

	1979	1978	1977	1976	1975
Administrative Personnel	600,000	570,000	550,000	500,000	400,000
Teaching Personnel	360,000	320,000	200,000	175,000	160,000
Fringe Benefits	72,000	60,000	40,000	40,000	35,000
Utilities	60,000	50,000	40,000	40,000	30,000
Maintenance	8,000	8,000	7,000	7,000	7,000
Travel	28,000	20,000	20,000	15,000	15,000
Consultants	8,000	2,000	1,000	500	-0-

NEW ENGLAND REGIONAL WASTEWATER INSTITUTE

Summary

In August of 1979, New England Interstate Water Pollution Control Commission submitted a request for $320,000 in 109(b) funds to construct an addition to an existing structure to house the New England Regional Wastewater Institute (NERWI) on the campus of Southern Main Vocational Technical Institute in South Portland, Maine. The plan is to include classrooms, a laboratory, wastewater shops, a seminar room, offices, resource center, and locker room in the two-story addition. Funding will come from the pooled "regional" allotments of four New England states which are Maine, Connecticut, New Hampshire and Vermont, with Massachusetts and New York soon to commit funds.

History of Application for 109(b)

The State of Maine and other states in New England were aware of 109(b) grant monies from the inception of the program in 1972. At that time, New England tried to pool their 109(b) funds to develop a regional center but the EPA interpretation of the 109(b) legislation ruled against any regional facilities. In 1973-1974, New England, with Maine and Massachusetts in the lead, decided not to use the available funds individually as they concluded that the funding could not support the type of program the region desired.

With the re-evaluation of the intent of the 109(b) legislation in 1974-1975, New England was able to rekindle interest in a 109(b) regional facility, both at the state level and at the governmental level within the regional EPA office.

The regional facility designated to utilize 109(b) funds was the New England Regional Wastewater Institute (NERWI) established on the campus of the Southern Maine Vocational Technical Institute (SMVTI) in Portland, Maine. NERWI was established in 1969 by the New England Interstate Water Pollution Control Commission (NEIWPCC). The Commission is a congressional entity established in 1947 by the Congress of the United States to oversee the control of pollution in the compact New England region.

In 1968, NEIWPCC decided to establish a full-time training program for wastewater operators. The Commission wanted to establish a three phase program including nine month basic entry level training, a mobile training facility, and a series of one week or less short courses of a specialized nature to provide upgrade training. The program was to be provided to the six-state New England region plus a small part of New York state which drained into the jurisdiction of the Commission.

In 1969, the Commission worked with Maine to establish the NERWI at South Portland, Maine. A pilot program was begun later in 1969, and the entire facility has continued to provide the desired services through to the present.

During its annual meeting in June 1979, the NEIWPCC voted to authorize the Executive Secretary to apply for Federal funds for construciton of a new facility for the wastewater training program on the SMVTI Campus.

The 109(b) application for a regional facility was submitted in mid-1979 to the office of the Construction Grants Section of EPA Region I in Boston, Massachusetts. The NERWI application requests $320,000 in 109(b) funding for a construction-oriented project.

The wastewater training facility is proposed as an addition to Hildreth Hall already existing on the SMVTC campus. The proposed addition to Hildreth Hall would be two stories with about 10,000 square feet of available space. The addition is planned to include the following: (1) two classrooms to accommodate 50 people each, (2) one laboratory for chemistry and microbiology, (3) two wastewater shops, (4) one seminar room, (5) office space for the NERWI staff, (6) a combination library and instructional resource center, and (7) a locker room.

The NEIWPCC, with the assistance of its member states, conducted a needs survey in 1979. Table 17 shows a summary of the needs for Connecticut, Maine, New Hampshire and Vermont - the four states which have pooled $80,000 each of their available 109(b) funding in order to build the NERWI facility. (It is anticipated that Massachusetts will add $80,000 in 109(b) funds and that New York will contribute a lesser amount.) The need for operator training evidenced in the survey exceeds the current NERWI capacity. NERWI provides about 40 entry level trainees per year, while the projected need is for over 100. The proposed expansion of NERWI, coupled with the in-state training to be started in Vermont and New Hampshire, should be capable of almost meeting the projected needs. If Massachusetts and Rhode Island are included in the need survey, as in Table 18, the volume of entry level training required grows even more substantially.

Utilization of 109(b) Funds

The NERWI has not yet received the Federal funds. Construction is anticipated to begin in the spring of 1980 following grant approval.

The 109(b) grant funds will be applied toward design and construction of the addition to Hildreth Hall. The estimated design and construction budget is shown in Table 19. The budget has two parts; the first subtotal represents $320,000 amassed from the contributions of Maine, Connecticut, New Hampshire, and Vermont. Items (c) and (d) in the budget relate to finishing the second floor and providing furnishings at a cost of $165,000. The $165,000 is expected to come from 109(b) assignments of Massachusetts, Rhode Island, and New York, with the possibility that some private funds might be added. As of late 1979, commitments for the second floor had not been received from the three states.

TABLE 17. ANTICIPATED WASTEWATER TREATMENT PERSONNEL STAFFING AND TRAINING NEEDS THROUGH CALENDAR YEAR 1984 FOR CT, ME, NH, AND VT

		Calendar Year							
Manpower Needs		1979	1980	1981	1982	1983	1984	Yearly Ave. 1980-84	Yearly 4-State Capacity
Forecast - New Construction Manpower Demand		55	66	93	169	64	51		
Attritional and Recommended or Existing Needs		83	81	108	116	114	112		
Total		138	147	201	285	178	163		
Training Needs									
Training Level:	Entry Level	88	97	126	150	98	88	112	0
	Skill Improvement	293	346	325	351	361	325	398	283
	Upgrade Training	48	67	59	65	47	46		
Total		429	510	510	566	506	459		

NOTES: (1) Skill Improvement is defined as the development and updating of knowledge and skills - skills to improve the performance of personnel in their current activities.

(2) Upgrade Training is defined as training to provide personnel with the knowledge and skills necessary for the safe and efficient operation and maintenance of their facility after it is upgraded.

TABLE 18. ANTICIPATED WASTEWATER TREATMENT PERSONNEL STAFFING AND TRAINING NEEDS THROUGH CALENDAR YEAR 1984 FOR CT, ME, NH, VT, MA, AND RI

	Calendar Year							
Manpower Needs	1979	1980	1981	1982	1983	1984	Yearly Ave. 1980-84	Yearly 4-State Capacity
Forecast - New Construction Manpower Demand	152	119	122	196	90	114		
Attritional and Recommended or Existing Needs	195	204	232	240	239	239		
Total	347	323	354	436	329	353		
Training Needs								
Training Level: Entry Level	297	273	279	301	249	278	276	75
Skill Improvement	593	637	618	644	654	620	714	418
Upgrade Training	50	71	61	108	73	85		
Total	920	981	958	1,053	976	983		

NOTES: (1) Skill Improvement is defined as the development and updating of knowledge and skills - skills to improve the performance of personnel in their current activities.

(2) Upgrade Training is defined as training to provide personnel with the knowledge and skills necessary for the safe and efficient operation and maintenance of their facility after it is upgraded.

TABLE 19

ESTIMATED DESIGN AND CONSTRUCTION COSTS FOR NERWI BUILDING

Consultant	$ 15,000
Field Surveys, Borings, Tests, Inspections	5,000
Construction	
2-story "Stranstone" Steel Frame Building at $21.00/sq.ft.	210,000
Finish 1st Floor (5,000 sq.ft.) at $18/sq.ft.	90,000
SUBTOTAL	$320,000
Finish 2nd Floor (5,000 sq.ft.) at $18/sq.ft.	90,000
Furnishings, Equipment	75,000
TOTAL	$485,000

Table 20 displays the anticipated operating budget of the new NERWI facility.

Statewide and Regional Training Program

The NERWI offers appropriate training for all levels of wastewater treatment plant operators. The nine-month on-campus program provides entry level training [Association of Board of Certification (ABC) levels I and II]. The in-residence short courses are upgrade classes primarily (ABC Levels II, III, and IV). Some courses are oriented entirely toward management. The mobile van facility is utilized to provide instruction in remote locations with the curriculum tailored to suit the needs of the host facility or region.

NERWI utilizes many modes of delivery in addition to texts for both on and off-campus training. In 1979 the Center received an EPA Region I training grant to establish an Instructional Resource Center (IRC) at NERWI which is being stocked with the most up-to-date and wide-ranging selection of visual training aids. Also, student carrels will be available for self-paced learning activities. The proposed new building will provide adequate space for the NERWI-IRC which is now based in a building separate from the existing NERWI classroom and laboratory.

NERWI has been fortunate in obtaining actual wastewater treatment equipment, most of which has been donated by concerned manufacturers and wastewater treatment plants. The equipment is used for classroom demonstrations and "hands-on" training in the laboratory facilities, both on-campus and in the mobile van.

NERWI has its own 26,000 GPD package treatment plant which is located adjacent to Hildreth Hall. The modified treatment facility is utilized to train the students and gives the program a means to demonstrate various operational methods. The discharge of the package unit goes to the new South Portland Treatment Plant, thus NERWI students can create and react to "disastrous" situations without endangering the local environment.

NERWI operates in close conjunction with SMVTI in the overall presentation of the NERWI program. NERWI supports SMVTI instructors by hiring them to present non-wastewater specialty classes such as chemistry and biology. SMVTI provides the present NERWI building and subsidizes a portion of the NERWI program by returning part of SMVTI tuition charges to NERWI.

The NEIWPCC funds four NERWI instructors, the operating budget for the nine-month program, and the total expenditures of the mobile van facility. All three of the existing NERWI training programs will be a part of the proposed Regional 109(b) Training Center.

The programs at NERWI are reviewed annually by an informal advisory committee made up of representatives from the water pollution control agencies of member states and the EPA Region I Operations and Maintenance group. The advisory committee is most helpful in the selection and scheduling of training courses offered from the mobile van, and the summer short courses.

TABLE 20

OPERATING BUDGET (BASED ON 1978-79 EXPENDITURES)

Revenue		
States		$ 17,800
EPA (106 Funds)		71,200
Tuition		
WW Technology Program (9-month)	$17,850	
Short Courses	5,525	23,375
SMVTI Contribution		39,168
	Total Revenue	$151,543
Expenses		
Personnel (NERWI)		$ 59,956
Fringe Benefits (NERWI)		7,575
Operating Expenses (NERWI)		26,925
SMVTI (Faculty, Administration, etc.)		57,087
	Total Expenses	$151,543

The nine-month curriculum at NERWI is reviewed annually by the committee in order to assure that the students' needs are being satisfied.

The nine-month program at NERWI is a comprehensive operator training program that provides the student with intensive training in wastewater treatment coupled with a general background in chemistry, hydraulics, mathematics, and microbiology. The nine-month program can handle about 40 students per year and has graduated about that many in each of the last five years.

The mobile training facility visits periodically throughout New England. The current van is a 23-foot Winnebago equipped with lab and maintenance facilities. The courses presented are upgrade training and credit is given for upgrade certification. The classes are three days in length with the class size averaging about 12, though the range in size is from one to 80. There is no charge for the use of the van throughout the region, but NERWI requires that the host facility provide a place to house the van. There are three instructors who alternate outings two at a time with the van. One of the instructors is a full-time van instructor, with the other two rotating assignments. Classes are scheduled on Tuesdays, Wednesdays, and Thursdays from 9:00 a.m. to 3:00 p.m. The 9:00 a.m. start allows operators to "check out" their facility in the morning, while the 3:00 p.m. finish each day allows the participants to "put their shift to bed." The starting times are during regular working hours, thus no overtime will have to be paid the participating operators.

The van operates throughout the year with scheduling done about six months in advance. Each six months a letter is sent to each state, soliciting the state's needs and a workable schedule. Classes are scheduled on a request basis until the facility is booked. The request for classes is usually two to three times greater than the capability of the mobile training facility; thus, interest in the actually scheduled classes is keen. No classes are taught on holidays. Monday and Friday are travel days. Every five to six weeks the van is grounded for one week for maintenance and to give the instructors a rest. The instructors stay in motels during their work week.

The selection of summer short course topics is based partially on a survey of the plant superintendents in the Region, and the input of Federal and state water pollution control personnel. The short courses are tailored to meet the needs of the locals which are not met by the nine-month and mobile van sessions. Tuition for all classes is kept at a minimal level; for example, for a 3-day short course about $100 is the maximum tuition and it includes three meals and a room for each day.

NEW HAMPSHIRE

Summary

New Hampshire has received $30,000 in 109(b) funding for accomplishing a combination of Step One and Step Two construction grant funding activities. New Hampshire, through its Water Supply and Pollution Control Commission, is proposing to construct a $340,000 facility to be known as the Franklin Training Center at Franklin, New Hampshire.

History of Application for 109(b)

The State of New Hampshire learned of the availability of 109(b) grant funds through the activity of EPA Regional personnel headquartered in Boston, Massachusetts. The state has only recently become involved in training wastewater treatment plant operators. In 1979, New Hampshire enacted legislation which made certification of water works operators mandatory. After June 25, 1980, the operators of New Hampshire public water systems, including both distribution and treatment facilities, will be required to have an operator's license.

The Franklin Training Center concept was formulated by the staff of the Water Supply and Pollution Control Commission. The plan was presented by the staff to the 13 member Commission, who, after review and appropriate modification, forwarded a grant application and accompanying narrative to the Governor and Council. The Council is a group of five which must approve matters of this sort in New Hampshire, along with the Governor. The Center was approved and the application submitted to EPA Region 1 in April 1977 for $30,000 for Step One and Step Two; and in May 1979 for an additional $340,000 to cover all construction and associated costs.

In addition to the grant application, the State of New Hampshire has allocated $80,000 of its available 109(b) funding to the New England Regional Wastewater Institute (NERWI). The mobile van facility of NERWI already regularly visits New Hampshire about three times each year, providing specialized laboratory classes to the assembled trainees.

The state has spent about $30,000 of 109(b) grant funds in accomplishing Step One and Step Two planning and facility design. The state prior to now had no facilities to conduct training programs in the field; only the NERWI mobile van or self-instruction provided the needed training. The increase in the number of wastewater treatment plants in New England has meant that visits by the NERWI van to New Hampshire have been reduced. Self study courses are "good" but of necessity have limited value because of the lack of classroom and "hands on" experience. Thus, the state decided to provide training services from a centralized location.

There are about 300 persons employed at 60 public wastewater treatment facilities in New Hampshire. There are 15 plants in the planning stage; the plants will create about 190 new positions. In addition, there is about a 20 percent annual attrition rate among New Hampshire operators, creating about 60 vacancies per year. Additional operators are employed at about 15 privately owned industrial wastewater treatment facilities. It is probable that the training of entry level personnel and upgrading of experienced personnel will be a considerable, continuous task for the foreseeable future. The estimate for new personnel alone, between 1983 and 1990, is 697, or about 100 per year in New Hampshire.

The Franklin Training Center is designed to accommodate many of the needs of the state, acting in concert with the NERWI program, other vocational/training schools, and self-study activities. Because of anticipated stiffening of EPA requirements/prosecution on sewage treatment discharge, New Hampshire is choosing to act now to alleviate future problems through thorough, well-balanced operator training.

Utilization of 109(b) Funds

The state has contracted an architect to design the Franklin Training Center to incorporate the recommendations of the WSPCC staff. The proposed training facility will consist of 4,500 square feet of building space divided into four connected learning ares. The largest space is the shop where practical classes on maintenance and operation of equipment common to wastewater and water treatment plants will be taught. Other planned areas include a physical/chemical testing laboratory, a large classroom, a resource center, storage areas, and a small office.

The Franklin Training Center will be located on state-owned property in close proximity to a regional WTP, the 11.6 MGD Franklin activated sludge facility. The Franklin plant will be available for "hands on" training, and will provide samples directly for laboratory and operation control studies.

The New Hampshire Water Supply and Pollution Control Commission will administer the facility from Concord, thus the entire Center building will be functional. The staff of the Center will be selected from WSPCC personnel; a Director will be appointed. The WSPCC will pay all the bills for operating and maintaining the facility, and will develop appropriate curriculum.

After an architectural firm designed the structure, bid specifications were circulated. Only one bidder was forthcoming because a ceiling had been placed on the cost of the structure. The bidder exceeded the ceiling (low bid $412,000; anticipated $292,000!) and as a result the state had to have the architect redo the design specifications. One of the problems which was identified as a result of informal discussions with no-bid contractors was the fact that the architect had added about $50,000 to the cost of the building by designing a "flashy" roof which required expensive building techniques. In late 1979 the plans were being redrafted by the architect in an attempt to lower the construction costs to within the legislated amounts.

Statewide Training Program

Courses in activated sludge, laboratory techniques, safety, pumps and pump maintenance, and mathematics will be taught routinely, with other courses developed as the need arises. The classes will be taught by NHWSPC engineers and scientists, many of whom hold advanced degrees. Several of the staff have attended the EPA Instructor Development course and are teaching part-time at local schools. Specialized classes will be scheduled with imported instructors.

The courses will be taught in the April through December period. It is planned that the Franklin Training Center be closed during January, February and March of each year in order to conserve fuel, and to avoid transportation-caused disruptions in accessibility due to inclement weather.

A portion of the operational costs of the facility will be recovered through nominal fees charged to the attending students. It is anticipated that fees will be about $30 per 10-hour course. Many of the students will be sent by municipalities. Students from municipalities pay a lesser fee than students from private industrial backgrounds who will be charged a fee based on the average cost to the state per student.

The state has recently revised its certification requirements. There are four grades of operators parallel to the classification assigned to each of the wastewater treatment facilities in the state. Classroom training may be substituted for up to 50 percent of the required experience in Classes II, III, and IV. The state writes and administers certification examinations, and has the option of accepting the certification credentials of other states in a transfer/relocation situation.

The NHWSPCC has in the summer of 1979 inaugurated the Operator Training News which endeavors to convey information of interest to all the operators in the state. Mr. Gordon Page is the editor of the News, as well as the person in charge of certification and the probable Director of the Franklin Training Center.

NEW JERSEY

Summary

The State of New Jersey has requested $471,650 in 109(b) funds to establish and construct the Pilot Plant Training facility at Cook College of Rutgers University located at New Brunswick, New Jersey. The facility will be equipped with bench scale models, a wastewater laboratory, a computer, three classrooms, and storage space. The entire structure will contain about 4,000 square feet.

History of Application for 109(b)

The Department of Environmental Research of New Jersey (DEP) and Rutgers University became aware, through the Region II EPA, of the 109(b) Program in the fall of 1976. The DEP commenced the application procedure in the spring of 1977. Initially, the plan was for the DEP to obtain the grant and then have Rutgers operate the center. There were internal conflicts over the ultimate ownership of the facility. These conflicts resulted because Rutgers (a state institution) would donate the building and land, but DEP would rehabilitate it. The conflicts were exacerbated by the turnover in Commissioners of the DEP; there were three in two years. It was resolved that Rutgers would be the designated 109(b) applicant. Rutgers submitted its application in June 1979 and EPA awarded the grant on September 18th. In late 1979, Rutgers was completing the detailed blueprints of the facility for EPA approval before expending 109(b) funds.

Utilization of 109(b) Funds

The 109(b) training facility will consist of three classrooms, three teaching laboratories and an area designed for hands-on training. Classroom space will total approximately 1,000 square feet which can be divided into from one to three classrooms depending upon class needs. The training facility will house three teaching laboratories totalling 1,300 square feet. Assorted storage space will be built to store tools, equipment and parts. One of the storage rooms will be utilized as the computer room, housing a model computer program to be used in the teaching program to simulate treatment processes.

The hands-on training portion of the facility will be equipped with one or more bench-scale model activated sludge treatment units; a pilot scale trickling filtration system; a primary waste treatment area inclusive of chemical coagulation; an anaerobic digestion and ultimate sludge disposal area; and an advanced waste treatment process area equipped with bench-scale advanced waste treatment models. A sewage tap and lift station will be built to provide continuous availability of raw domestic sewage for pilot plant activities. After the sewage flows through the pilot facilities, it will be discharged directly back into the Middlesex County Sewer System. This design provides a great deal of flexibility in varying operation parameters for study without having to be concerned with discharge requirements.

Statewide Training Program

Curriculum at the New Jersey Water Quality Training Center (NJWQTC) will be based on the National Training and Operational Technology Center of the U.S. Environmental Protection Agency courses in the water quality field. Four different programs will be arranged in order to develop expertise in the wastewater technology and water quality field. The curriculum for water quality training might include the following programs and courses:

- Program for Water Quality Inspectors, Planners and Designers
    - Orientation to Municipal Wastewater Treatment
    - Biological Treatment Technology
    - Sludge Treatment Disposal
    - Advanced Wastewater Treatment Technology
    - Conducting Operation and Maintenance Inspections at Municipal Wastewater Treatment Facility
    - Water Quality and Pollutant Source Monitoring: Field and Laboratory Procedures
- Program for Wastewater Treatment Plant Operating Personnel
    - Orientation to Municipal Wastewater Treatment
    - Biological Treatment Technology
    - Sludge Treatment and Disposal
    - Advanced Wastewater Treatment Technology
    - Troubleshooting Operation and Maintenance Problems in Wastewater Treatment Plants
    - Basic Environmental Statistics
    - Water Quality and Pollutant Source Monitoring: Field and Laboratory Procedures
- Program for Water Quality Laboratory Personnel
    - Inorganic Analysis in Water Quality Control Programs
    - Organic Analysis in Water Quality Control Programs
    - Pesticides Residue Analysis in Water
    - Analytical Methods for Trace Metals
    - Microbiology of Activated Sludge
    - Bacteriological Methods in Water Control Programs
    - Water Quality and Pollutant Source Monitoring: Field and Laboratory Procedures
    - Analytical Quality Control
    - Planning Monitoring Activities in Water Quality Management Programs
    - Basic Environmental Statistics

In the field of water quality training and water treatment plant operations, the following six course program would be recommended:

- Program for Water Treatment Plant Operators
    - Orientation to Water Treatment
    - Water Supply - Distribution and Storage Systems
    - Disinfection and Backflow Cross-Connection Control
    - Physical-Chemical Treatment Technology
    - Water Quality and Pollutant Source Monitoring: Field and Laboratory Procedures
    - Basic Environmental Statistics

The staff at the NJWQTC would develop all or portions of some of the classes, while others would be derived from NTOTC with modifications.

To encourage potential students to start and complete the proposed areas of water quality training, certificates of completion will be issued after the student has completed each program of study. The proposed course schedule given during the upcoming year would be publicized by (a) advertisement in professional journals, (b) mass brochure mailing to the target audience, (c) personal attendance and notification of target audience (see Table 21).

The "hands on" water quality courses will be given at the Training Center, but the lecture courses could also be taught at remote locations in the state in order to decrease travel time and budgeted travel expenses of the participants. Two remote sites, one in the northern part of the state and one in the southern part of the state, could be utilized. The use of remote locations would increase the operating costs of the Training Center due to travel expenses for the instructors. The use of remote locations will therefore require increased course fees or state grant monies to subsidize the program.

The proposed operating budget for the New Jersey Water Quality Training Center is shown in Table 22.

Primary and secondary treatment operator training is at the technical and community college level. Training programs are focused on curriculums which will prepare students for statewide certification tests. These tests are given independently of the courses and satisfactory completion of the course does not eliminate the requirement to take the test. There is no requirement for operators to take any courses for certification. The objective of the 109(b) program will be to develop a training center in New Brunswick which would provide facilities for the following instructional programs:

- Provide a block of instruction at the center for the community college students. Instruction would be by both the community college and Rutgers instructors. Advantage would be taken of the more advanced facilities available at the center.

- Provide instruction in advanced and industrial treatment plant operation.

TABLE 21

POTENTIAL ADVERTISING MEDIA AND AUDIENCE FOR NJWQTC PROGRAMS

Advertising via Professional Journals

Journal of the American Water Works Association
Journal of the Water Pollution Control Federation
New Jersey Water Pollution Control Association Publication
AWWA - New Jersey Section Publication

Mass Brochure Mailing to the Target Audience

Licensed Water and Wastewater Personnel in New Jersey
Executive Officers and Superintendents of Water and Wastewater Treatment Plant Authorities
Designated personnel who are responsible for industrial wastewater facilities under the National Pollution Discharge Elimination System Permit

Personal Attendance and Notification of Target Audience

Attendance of State Training Center personnel at the Annual Meeting of the New Jersey Section of the American Water Works Association and New Jersey Water Pollution Control Association
Meeting with training officers of the New Jersey Department of Environmental Protection and Region II - US EPA

TABLE 22

New Jersey Water and Wastewater Quality Training Center

Staff Costs

Instructor	100% of Full-time	$ 14,012
Two Assistant Instructors	100% of Full-time	24,190
Senior Laboratory Technician	100% of Full-time	10,876
Secretary	100% of Full-time	8,524
Administrator	5% of Full-time	2,402
Director	20% of Full-time	4,142
		$ 64,147

Rutgers University Overhead

$ 64,147 x .98 = $ 62,864	62,864

Training Center Course Costs

Laboratory Costs ($300/day x 5 days x 7 courses) =	10,500
Lecture Courses ($25/student x 20 students x 14 course =	14,000

Outreach Locations

Lecture Courses ($25/student x 20 students x 14 courses) =	7,000
Room Charges ($500/course x 14 courses) =	7,000
Total Costs	$165,511

700 Students = $237/student

- Provide specialty courses to fill in gaps in the technical and community college curriculums.

- Train DEP treatment plant inspectors.

NEW MEXICO

Summary

New Mexico has acquired $500,000 in 109(b) grant funding. Due to unforeseen circumstances, detailed information from New Mexico is not yet available. The New Mexico facility is located at Las Cruces and is affiliated with the Dona Ana County Occupational Education Center.

OKLAHOMA

Summary

The Oklahoma designated statewide training center was established in 1975 (first classes in 1977) at the Oscar Rose Junior College in Midwest City, Oklahoma. The program at Oscar Rose is called the Oklahoma Water Utilities Training Center. The $250,000 190(b) grant was utilized to renovate and refurbish a building adjacent to a Midwest City municipal wastewater treatment plant providing classrooms, laboratories, and office space for the newly organized state wastewater technicians school. Oklahoma, through Oscar Rose Junior College, in December 1979 requested a $250,000 amendment to the original grant to widen program offerings, expand the physical facility, and increase staff.

History of Application for 109(b)

The initial interest in acquiring a 109(b) grant originated with the Oklahoma State Department of Health. An advisory committee was organized to select the best location for the Oklahoma statewide training center. The committee included the mayors and city managers of Midwest City and Del City, state Health Department representatives, and Oscar Rose Junior College representatives. The primary competitor to Oscar Rose Junior College was the state Department of Vocational Technical Education. Based on its central location, proximity to I-40, Tinker AFB, and the Midwest City Wastewater Treatment Plant, and the Oscar Rose College reputation, the Oscar Rose Community College was recommended by the advisory committee as the site for the Oklahoma Water Utilities Training Center (originally called the Wastewater Technician's School). The Governor concurred with the evaluation of the committee.

The Oscar Rose application was submitted in January 1976, and the funds acquired shortly thereafter with the first classes offered in April, 1977. The current staff at Oscar Rose Junior College-Oklahoma Water Utilities Training Center were employed after the 109(b) application process; however, their understanding of the application process is such that no major problems arose.

Utilization of 109(b) Funds

The $250,000 in 109(b) funds, in addition to $282,000 in state funds, were used primarily to renovate an existing building on the college campus. About 10,000 square feet of floor space was refurbished to be devoted to the training of wastewater treatment plant operators (see Figure 13). Adjacent to the renovated building is the Midwest City Southside Sewage Disposal Plant. The plant is a 1 MGD facility providing secondary sewage

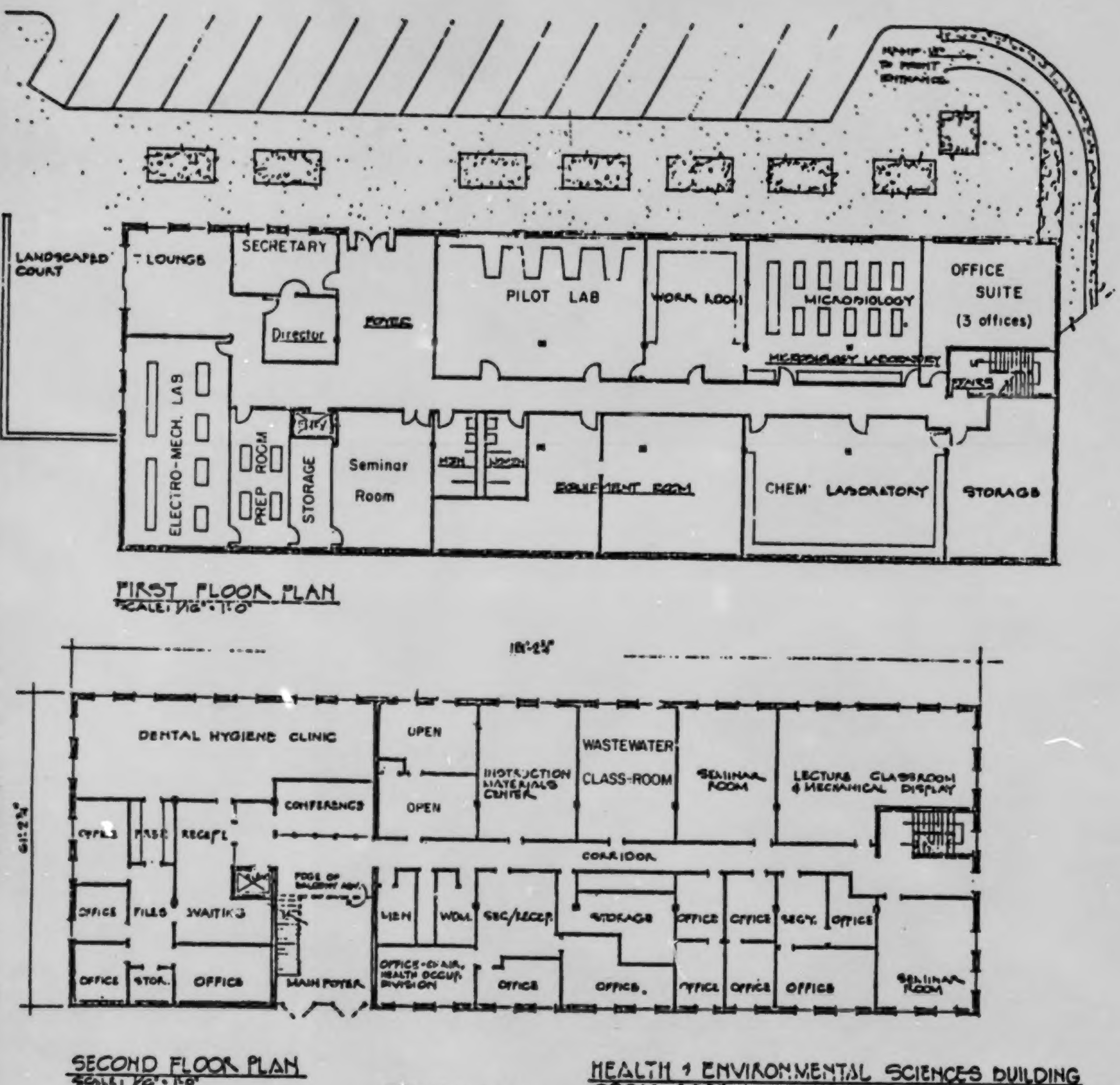
RAMP UP TO FRONT ENTRANCE
LANDSCAPED COURT
LOUNGE
SECRETARY
Director
FOYER
PILOT LAB
WORK ROOM
MICROBIOLOGY
MICROBIOLOGY LABORATORY
OFFICE SUITE (3 offices)
STAIRS
ELECTRO-MECH. LAB
PREP ROOM
STORAGE
Seminar Room
MEN
WOMEN
EQUIPMENT ROOM
CHEM' LABORATORY
STORAGE
FIRST FLOOR PLAN
SCALE: 1/16" = 1'-0"
181'-2 1/2"
61'-2 1/2"
DENTAL HYGIENE CLINIC
OPEN
OPEN
INSTRUCTION MATERIALS CENTER
WASTEWATER CLASS-ROOM
SEMINAR ROOM
LECTURE CLASSROOM & MECHANICAL DISPLAY
CONFERENCE
OFFICE
PRSC
RECEPT.
CORRIDOR
EDGE OF BALCONY ABV.
OFFICE
FILES
WAITING
MEN
WOM.
SEC/RECEP.
STORAGE
OFFICE
OFFICE
SEC'Y.
OFFICE
OFFICE
STOR.
OFFICE
MAIN FOYER
OFFICE-CHAIR. HEALTH OCCUP. DIVISION
OFFICE
OFFICE
OFFICE
OFFICE
OFFICE
SEMINAR ROOM
SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"

FIGURE 13

HEALTH + ENVIRONMENTAL SCIENCES BUILDING
OSCAR ROSE JUNIOR COLLEGE
MIDWEST CITY, OKLAHOMA
MAY, 1975

treatment consisting of screening, primary sedimentation, trickling filter, intermediate and final sedimentation with recirculation and an anaerobic digestor. Unit process models are set up in the Environmental Science Building (ESB), utilizing raw sewage from the plant. Sewage from the plant is passed at various stages to the facility for testing, processing, and study. After completion of use in the ESB, the sewage of rerouted back to the WTP for treatment.

Various laboratories were included in the 109(b) fundings as follows: (1) chemistry, (2) microbiology, (3) electromechanical, and (4) pilot laboratory (see Figure 13). In addition, an Instructional Materials library was built. Equipment was purchased to fill each of the laboratories, as well as the staff offices.

The building renovation cost was about $170,000 including architectural fees, while the furnishings and equipment amounted to $76,000. The actual dollar payout by the Junior College was about $32,000, with the remaining $250,000 in funding accruing from the college providing the building and its acreage (1/2 cost of 32,400 square foot building and 4.52 acres of land estimated at $250,000).

Statewide Training Program

The objective of the Oklahoma Water Utilities Training Center is to provide educational programs for in-service and pre-service operating technicians of environmental control facilities including hands-on experience in the nearby Midwest City trickling filter plant. The programs are provided for wastewater treatment and potable water supply technicians/operators as well as air pollution control, solid wastes disposal, community sanitation, and environmental control laboratory technicians. In addition, specialized offerings are provided for collection and distribution system maintenance personnel. The training and upgrading of the over 3500 wastewater and water supply operators in Oklahoma is the primary function of the facility.

Table 23 illustrates the activities which are ongoing at the Oklahoma Water Utilities Training Center. Of the total enrollment in the Oklahoma programs, about 80 percent are wastewater environmental system operators, about 3 percent state regulatory personnel, about 10 percent are waste supply operators, and the remaining 7 percent are environmental laboratory technicians.

The program occupies about one-half the Environmental Sciences Building on the Oscar Rose Junior College campus, with two permanent classrooms each seating about 25 (2500 square feet), four laboratories (5400 square feet) and five faculty offices (1000 square feet). A learning resource center is located on campus, and a complete audio-visual facility including "talk back television" is an integral part of the training.

The faculty in late 1979 consisted of a Director (PT), Coordinator (FT), 7 Instructors (6 PT, 1 FT), Clerical Staff (FT), Special Program Coordinator (FT), and Lab Assistant (PT). The Director monitors the activities of the entire Environmental Science program at Oscar Rose, thus the Coordinator

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TABLE 23. FUNCTIONS OF OKLAHOMA WATER UTILITIES TRAINING CENTER

	Planned (Yes or No)	Accomplished by (Year)	Expect to Achieve by (Year)
2-yr Associate Degree	Yes	1977	
1-yr.Technical Certificate	Yes		1980
Pre-service Training	Yes	1976	
Inservice Training	Yes	1977	
On-site Training*	Yes	1978	
Research	No		
Development of Training Materials	Yes	Continuous	
Dissemination of Training Materials	Yes	1977 Manuals	
Instructor Development	Yes	1978	

*In Midwest City trickling filter plant, which is located adjacent to the Oscar Rose Training Center.

is primarily responsible for the Water Utilities Training Center. The Coordinator spends about one-half his time instructing, with administration, training material development, program planning, and recruitment occupying the remainder of his time in that order of importance. The full-time Instructor spends about 85 percent of his time teaching, with the remainder in training material development and recruitment. The Laboratory Assistant is on-call at a 3/4th's time rate.

Of the total instructional time available, about 50 percent is devoted to wastewater oriented classes, 20 percent to water supply, 12 percent to laboratory, 5 percent to solid waste, 4 percent to air pollution, and 9 percent to general courses.

In 1979, about 250 students received instruction in water related fields at Oscar Rose Junior College. Fifty students were enrolled in degree programs, while 200 attended the various workshops and seminars. About 25 students are enrolled on a full-time basis.

Since the educational background of the present wastewater technicians varies widely, and since the amount of sophisticated equipment which the technicians use at their work site also varies, a multi-level curriculum has been established; that is, a curriculum created for several levels of background and capabilities. Emphasis is placed on the technical education exposure of the College coupled with the practical on-site exposure of the adjacent sewage treatment plant which has similar characteristics to the facilities at many communities around the state. The course work is geared to meet the immediate needs of the technicians.

The curriculum is divided into four levels which correspond with, and prepare the student to pass, examinations at the four licensing levels, A, B, C, and D. The students are involved in one-week training sessions which are devoted to each licensing level as needed. Scheduling in this manner allows the facility to service the maximum number of students across the state. The emphasis of the curriculum is placed on chemical testing, sewage microbiology, equipment operations and maintenance, plant safety, and business skills including technical writing. The curriculum for each level revolves around this core with the "A" level technicians receiving the most in-depth instruction to insure their gaining a thorough knowledge and understanding of each facet of wastewater processing, including the ability to "trouble shoot" problems in plant operation.

The initial curriculum has been established by the Advisory Committee. The curriculum is reviewed periodically and modified when necessary. The courses and materials which are utilized in the curriculum have been developed by the EPA and modified by the Oscar Rose-WUTC staff.

In addition to the formal school curriculum, new procedures or techniques can be disseminated rapidly to the wastewater technicians throughout the state through the use of the "Talk-Back" Television System operated by the Oklahoma State Regents for Higher Education. The college has a transmitting and receiving studio for closed circuit television connected to 41 receiving stations throughout Oklahoma. The students at each receiving station can immediately talk to the instructor at the Oscar Rose transmitting station through a "Talk-Back" audio response system. Technical courses and training are offered at Oscar Rose Junior College during the Wastewater Technicians School Program and are seen on an "as needed" basis over the statewide Televised Instructional System. The close proximity of Oscar Rose to the State Health Department headquarters is convenient for personnel from the Health Department to disseminate information via the "Talk-Back" Television facilities.

It is proposed that when the need periodically arises for special one-day seminars, wastewater technicians throughout the state can converge on these receiving stations to acquire the training via TV, thus reducing travel time for the participants and expense to the municipalities sending their employees.

Recognizing that wastewater treatment technician training is only part of the total training needs in environmental science, Oscar Rose Junior College has an approved two year associate degree program in Environmental Science. The Associate in Applied Science Degree is offered in two areas of Environmental Science. The student may choose a General Degree in Environmental Science or the option in Wastewater Technology. These programs qualify the student to work for public and private organizations which have humanitarian interest, such as food handling, water treatment (waste and fresh), and environmental assessment. The students majoring in the General Degree take a core curriculum during the first year. The last semester of the second year they usually concentrate on their particular interest, i.e., food handling, environmental assessment, etc.

The students choosing the Wastewater Technology option take many of the same courses as those majoring in the General Degree; however, the wastewater students begin to specialize sooner in their college work, with the second year devoted primarily to the specialization of Wastewater Technology. Table 24 illustrates the specific requirements and the specialized courses pertinent to the Wastewater Technology Degree Program at Oscar Rose Junior College.

Table 25 is the organizational chart for the Water Utilities Training Center. The day-to-day activities of the Center are monitored by the Oscar Rose Junior College administration. The overall statewide effort is the responsibility of the Oklahoma Joint Training Coordinating Committee (JTCC). The JTCC is made up of the following members: (1) Oklahoma State Health Department (OSDH) operating training director, (2) Director of the Water Utilities Operators Training Center (WUOTC), (3) President of the Oklahoma Rural Water Association (ORWA), (4) Chairman of the State Advisory Council (SAC) on operator training and certification, (5) Chief of Environmental Health Services, Oklahoma City-County Health Department (OCCHD), (6) State Director of Vocational Education (Vo-Ed), and (7) Executive Secretary of the Oklahoma Municipal League (OML). The JTCC meets at least twice per year and has the following objectives:

(1) To secure cooperation of all those involved in the training of water or wastewater operators in Oklahoma and advise them on

TABLE 24. PROBABLE CURRICULUM AT OKLAHOMA ETC

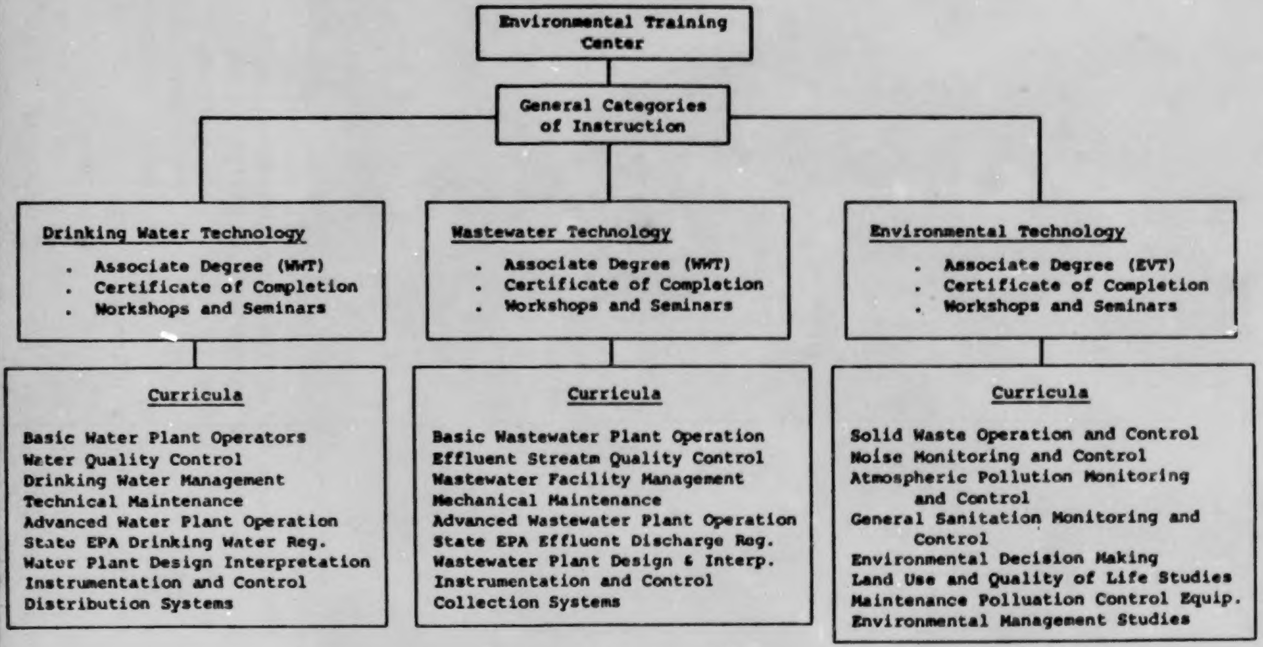
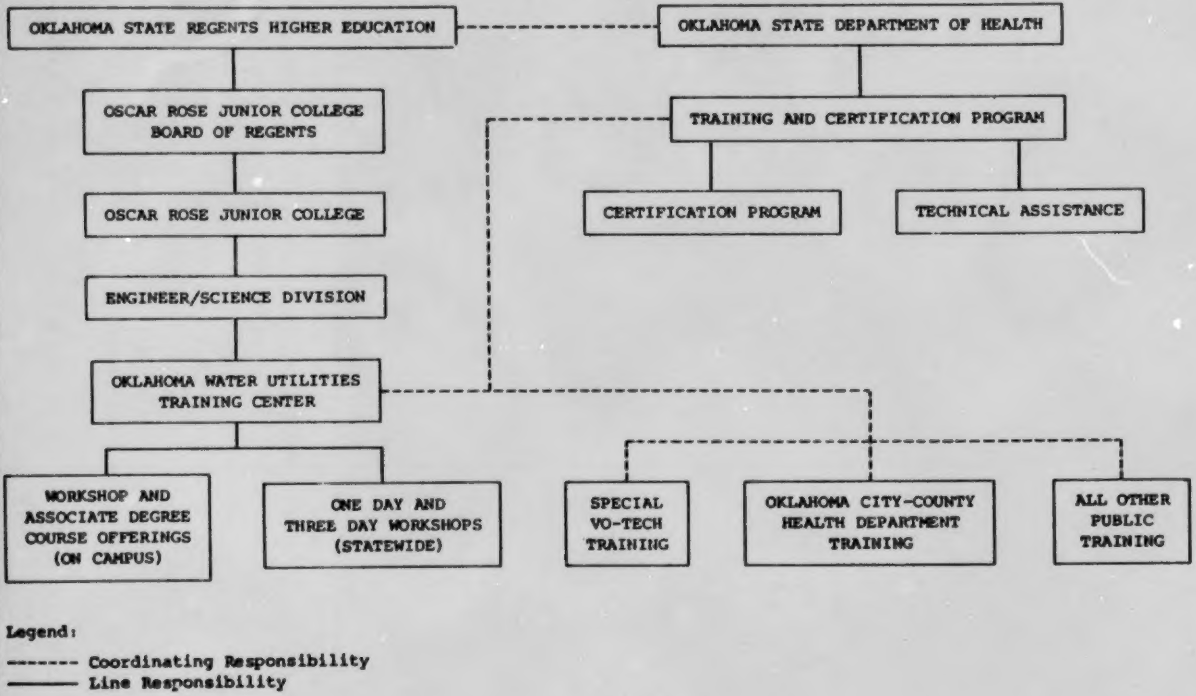

Environmental Training Center
General Categories of Instruction
Drinking Water Technology
. Associate Degree (WWT)
. Certificate of Completion
. Workshops and Seminars
Wastewater Technology
. Associate Degree (WWT)
. Certificate of Completion
. Workshops and Seminars
Environmental Technology
. Associate Degree (EVT)
. Certificate of Completion
. Workshops and Seminars
Curricula
Basic Water Plant Operators
Water Quality Control
Drinking Water Management
Technical Maintenance
Advanced Water Plant Operation
State EPA Drinking Water Reg.
Water Plant Design Interpretation
Instrumentation and Control
Distribution Systems
Curricula
Basic Wastewater Plant Operation
Effluent Streatm Quality Control
Wastewater Facility Management
Mechanical Maintenance
Advanced Wastewater Plant Operation
State EPA Effluent Discharge Reg.
Wastewater Plant Design & Interp.
Instrumentation and Control
Collection Systems
Curricula
Solid Waste Operation and Control
Noise Monitoring and Control
Atmospheric Pollution Monitoring and Control
General Sanitation Monitoring and Control
Environmental Decision Making
Land Use and Quality of Life Studies
Maintenance Polluation Control Equip.
Environmental Management Studies

TABLE 25. ORGANIZATIONAL CHART FOR OKLAHOMA'S 109(b) TRAINING FACILITY


OKLAHOMA STATE REGENTS HIGHER EDUCATION
OKLAHOMA STATE DEPARTMENT OF HEALTH
OSCAR ROSE JUNIOR COLLEGE BOARD OF REGENTS
TRAINING AND CERTIFICATION PROGRAM
OSCAR ROSE JUNIOR COLLEGE
CERTIFICATION PROGRAM
TECHNICAL ASSISTANCE
ENGINEER/SCIENCE DIVISION
OKLAHOMA WATER UTILITIES TRAINING CENTER
WORKSHOP AND ASSOCIATE DEGREE COURSE OFFERINGS (ON CAMPUS)
ONE DAY AND THREE DAY WORKSHOPS (STATEWIDE)
SPECIAL VO-TECH TRAINING
OKLAHOMA CITY-COUNTY HEALTH DEPARTMENT TRAINING
ALL OTHER PUBLIC TRAINING
Legend:
------- Coordinating Responsibility
——— Line Responsibility

matters relating to the instructional process leading to certification and continuing education requirements for further advancement as operators after training needs for water and wastewater operators have been determined.

(2) To insure that operator training will be current, comprehensive, relevant and readily available to all seeking such a training program in the State.

(3) To encourage all persons working in the water or wastewater field to upgrade their skills and knowledge by taking full advantage of available training opportunities.

(4) To establish minimum standardized training course outlines for use in the training programs for water and wastewater facilities operators and document procedures whereby CEU's (Continuing Education Units) and/or college credit are assigned to eligible training offerings. The procedure shall consider the nationwide impact of the CEU concept and follow generally prescribed procedures and policies followed by other states and nationally recognized organizations.

(5) To seek and provide proper resources, authority, institutional arrangements and guidance for statewide coordination of water/wastewater training.

The State of Oklahoma has a wastewater operators' certification program which is administered by the Oklahoma State Department of Health. The classes taught by the Water Utilities Training Center pertain directly to the certfication requirements and examinations. Classes attended and passed can be substituted directly for work experience, whether the classes have been taken for college credit, as workshops/seminars, or as continuing education units. In addition, the Center conducts a program resulting in certification as a Lab Technician upon passage of the appropriate Oklahoma Health Department examination.

Table 26 illustrates a typical class schedule for a student pursuing the Associate in Applied Science Degree with a specialty in Water/Wastewater Technology. After 50 students annually pursue the degree, one-half of whom are full time attendees. In addition, specialized offerings are regularly scheduled. Table 27 details the specialized courses; about 200 attendees per year are taught at Oscar Rose Junior College. Additionally, special courses are conducted for municipalities and other agencies on a contractual basis. Examples of these "contract courses" include "Water/Wastewater Treatment Plant Operators" for Oklahoma City Water Department employees and "Waste Disposal Training Program" for Indian students sponsored by the Cherokee Nation of Oklahoma.

Table 28 displays the operating costs at the facility in its four years of operation. Table 29 shows the funding of the Center. In addition, Table 30 displays the various grants and contracts which have provided additional income to the facility.

TABLE 26. WATER/WASTEWATER TECHNOLOGY DEGREE OPTION

Associate in Applied Science

I. General Education — Semester Hours - 17

II. Science Requirements — Semester Hours - 44-49

ENSC	1101	Orientation to Environmental Science
ENSC	1103	Introduction to Environmental Science
ENSC	1215	Water/Wastewater Plant Equipment I
ENSC	2013	Water/Wastewater Plant Management
ENSC	2190	Individual Studies (1-6 Semester Hours)
ENSC	2213	Water/Wastewater Plant Equipment II
ENSC	2225	Water/Wastewater Plant Operation I
ENSC	2235	Water/Wastewater Plant Operation II
LFSC	1125	General Biology
LFSC	1135	Principals of Microbiology
CHEM	1114	Introductory Chemistry
CHEM	1205	Chemistry II

III. Mathematics Requirement — Semester Hours - 3

MATH	1133	Foundations of Technical Math

IV. Electives

Electives have been met by program requirements.

TABLE 27. SPECIALIZED WORKSHOP OFFERINGS

The following workshops are offered at various times throughout the year at the Training Center for Water Utilities Personnel:

WATER LABORATORY TECHNICIANS COURSE

- Unit I Basic Laboratory Skills (4 days)
- Unit II Wastewater Parameters (4 days)
- Unit III Potable Water Parameters (4 days)
- Unit V Specialty Monitoring (4 days)

WATER UTILITIES PLANT EQUIPMENT

- Unit I Electricity, Motors, Controls (3 days)
- Unit II Pumps and Hydraulics (3 days)
- Unit III Flow Regulation (3 days)

BASIC WATER TREATMENT PLANT OPERATORS COURSE (5 days)

BASIC WASTEWATER TREATMENT PLANT OPERATORS COURSE (5 days)

Specialized short courses will also be offered throughout year which might include such topics as:

Management
Public Relations
Groundwater
Lagoons
Trickling Filter
Activated Sludge

TABLE 28

OPERATING COSTS

	FY 1979/80	FY 1978/79	FY 1977/78	FY 1976/77
1. Administrative Personnel*	$20,000	$18,800	$17,200	$15,800
2. Teaching Personnel	29,200	26,900	23,400	21,000
3. Fringe Benefits	5,300	5,000	4,700	4,400
4. Utilities	N/A	N/A	N/A	N/A
5. Maintenance	N/A	N/A	N/A	N/A
6. Travel	500	1,000	1,300	1,000
7. Material & Supplies	6,300	5,000	5,000	5,000
8. Consultants & Supplemental Instructors	3,000	1,000	700	500
9. Other Equipment	1,000	3,000	3,000	0

*40% Coordinator, Secretary, Laboratory Assistant

TABLE 29

FUNDING SOURCES

	FY 1979/80	FY 1978/79	FY 1977/78	FY 1976/77
1. Annual Operating Budget	$66,200	$60,700	$55,300	$47,700
2. Annual Income - TOTAL	51,400	44,000	40,000	33,000
(a) Tuition*	4,600	4,000	3,500	3,000
(b) Other Sources (State Allocations)	46,800	40,000	35,000	30,000

*Estimated from number of Environmental Science majors.

TABLE 30

GRANTS AND CONTRACTS

Funding Source	Project Title or Description	Amount	Grant Period
EPA	Wastewater Treatment Works Const. (Sec. 109B)	$250,000	07/01/76-03/31-77
EPA	Wastewater Treatment Facility Operators Training	15,000	07/01/76-06/30/77
HEW	Cooperative Education Program		07/01/76-06/30/77
DOL (Sub-Contract)	Cherokee Nation of Oklahoma Wastewater Operators Training	75,000	01/01/78-09/30/79
EPA	Water Pollution Control - Manpower Development	20,444	10/01/78-09/30/79
EPA	Water Pollution Control - Manpower Development	15,660	10/01/78-09/30/79
Oklahoma City	Wastewater Plant Maintenance Control	1,200	01/01/79-05/01/79
EPA	Wastewater Operations and Maintenance Troubleshooting (Charles County Community College)	3,900	07/01/79-06/30/80
CETA	Environmental Control Internship Program	31,500	10/01/79-09/30/80
FIPSE (HEW)	Basic Skills and Careers Program	47,000	09/01/79-01/30/81

The Oklahoma Water Utilities Training Center is a viable entity which conducts water/wastewater training from its centralized location in Midwest City, Oklahoma. Its personnel are attempting to expand interest in its program by holding open houses, visiting high schools, producing and contributing to professional newsletters, and appearing before various civic functions. The Center works closely with the Oklahoma Department of Health and is attempting to evolve according to the needs of the people of the State of Oklahoma. The overall program at Oscar Rose Junior College is considered quite successful by the participants.

UTAH

Summary

The State of Utah has requested $500,000 in 109(b) funds to establish a Wastewater Training Center at Utah Technical College at Provo (UTC/P), Utah. The facility will be about 6,000 square feet and will contain a hydraulics laboratory, chlorinator room, chlorine storage room, hydraulics storage room, electrical and mechanical repair laboratory, a sanitary chemical and biological laboratory, chemical storeroom, two classrooms, an audio/visual storage room, a secretary/receptionist area, two offices (director and instructor) and a mechanical storage/repair area.

History of Application for 109(b)

UTC/P became interested in 109(b) in 1978 particularly in response to a perceived need for training throughout the state. An advisory committee was appointed by UTC/P to begin curriculum development and to oversee the formulation of a specialized wastewater training facility. A grant application for $500,000 in 109(b) funds was submitted in March 1979 and awarded to UTC/P through the State Department of Health in May 1979. About $350,000 is anticipated in construction cost, with the remaining $150,000 used to purchase equipment. Due to anticipated inflationary cost escalation, UTC/P has requested deductive bid alternatives in order to hold the cost to no more than $500,000.

The State Building Board has approved the appointment of an architect. The UTC/P Institutional Council has approved the location of the wastewater training facility on the Orem campus, and their decision has been accepted by the Board of Regents.

Utilization of 109(b) Funds

The facility is in the architectural design phase at this time. No monies have been billed yet by the state. The Utah facility is proposed to have a net floor space of 5,080 square feet. Emphasis will be on basic training facilities for hydraulics, chlorination processes, chemical testing and electrical maintenance, offices and classrooms. The facility will utilize chlorine gas. The orientation of the two chlorine rooms will be designed to minimize risk from explosion or inhalation. Vehicle access will be provided to the chlorination rooms.

The 109(b) monies will be applied primarily toward the cost of the building with some furnishings and equipment being provided.

Statewide Training Program

Utah Technical College at Provo, along with the Utah Division of Health, officially recognized the need for formal statewide training in the wastewater field and, early in 1977, began steps to designate wastewater training as a discipline to be taught within the Utah higher education system. The role assignments for providing training leading toward a certificate and the Associate of Applied Science Degree in Water/Wastewater Treatment was approved in February, 1978, by the Utah State Board of Higher Education for Utah Technical College at Provo. In cooperation with the Utah State Board of Education, Utah Technical College at Provo was awarded a $20,000 training grant effective March 1, 1978 through June 30, 1979. Funding has continued to the present.

It was decided that an Advisory Committee be formed for the wastewater discipline at the college. Members were appointed from the Utah State Division of Health, the City of Provo, Utah Technical College at Provo, the city of Orem, Utah State University, and the Utah League of Cities and Towns. In addition, a cooperative training arrangement between the Utah State Division of Health and UTC-Provo was secured. A series of training workshops were scheduled for 1978-79, and have been upgraded to the present.

Presently, UTC at Provo is conducting seminars, workshops and short courses in wastewater technology at various statewide locations, utilizing the curriculum approved by the Advisory Committee. In order to minimize student travel time, these programs will continue after the Utah Wastewater Training Center is completed. Each month at least one seminar, workshop, or short course is presented somewhere in Utah by UTC-Provo. These training components are presented primarily along the Wasatch Front in the area of highest concentration of population and treatment plants. As training demand increases, these components will be presented in other areas of Utah.

Off campus regularly scheduled classes, meeting at least once a week, started in the fall of 1979. These classes are usually held in treatment plant training rooms or in the on-campus facilities of a Utah institution of higher learning.

Planned Utilization of the Utah Wastewater Training Center

Training needs of wastewater treatment plant operators and employees are statewide and, therefore, require multiple educational services. These services are: (1) regularly scheduled classes meeting at least once each week; (2) one to five day workshops; (3) special interest seminars; (4) state-wide annual conference; (5) individual plant employee training need(s); (6) loaned instructional printed and audio-visual materials; (7) utilization of a resource library and (8) on-site services of a resource person.

Regularly scheduled classes will be offered each term in the Training Center. Inasmuch as the proposed Training Center will be only 39 miles from downtown Salt Lake Citv, the major metropolitan center of Utah is within easy driving range. Of course, regular scheduled classes will continue to be presented each term in outlying areas, as requested, to minimize student travel.

Workshops will be scheduled in the Training Center on a regular basis. Usually, these workshops will be available to anyone in the state and on occasion to selected groups. These selected groups may be from plants having similar interests and needs. Selectees will come to the Training Center for one or more days of concentrated study.

Special interest seminars will cover a particular area of interest and will be taught by instructors having special expertise. A statewide annual conference is planned for the spring of 1980 on the Orem Campus. It is hoped that this conference will become a yearly affair to be held in the training center.

Individual needs or needs of a specific plant which require services of a resource material or person will be accommodated. The Training Center library will be the resource center. The program director or an instructor will research the problem and the findings will be forwarded to the requestor.

The library will house all film, slide-sound programs, cassettes, and other audio-visual material. These, along with other research, resource and instructional matter, will be available for loan to treatment plant training officers in Utah.

Utah Technical College at Provo agrees to include the operating and maintenance costs of this training facility in the institutional budget. These substantial costs will be projected into the 1980-81 request for funds from the Utah Legislature. A detailed listing of these costs will be prepared upon completion of the working drawing by the architect.

The anticipated staffing for the Center will include a full-time director, instructor, and secretary. Some of the teaching will be accomplished by part-time instructors who are master-level operators. The number of part-time instructors will depend on demand, and development of short courses, workshops and other delivery modes. It is planned to offer the courses in wastewater treatment, water supply, and laboratory techniques in 1980, with courses in solid waste, air pollution, and hazardous materials in 1981. The college is planning on beginning its degree program in 1980.

VERMONT

Summary

Vermont has an application pending for $81,520 in 109(b) funds to begin a Water Treatment Studies Program for the state at Rutland Area Vocational-Technical Center in Rutland, Vermont. The proposed Vermont program will be funded partially for three years by the 109(b) grant. In addition, the state has forwarded a request to the EPA for $80,000 of their grant eligible 109(b) funds to be authorized for expenditure by the New England Regional Wastewater Institute at Portland, Maine, as a part of a six-state common effort in establishing a regional training facility.

History of Application for 109(b)

Vermont has not had any trouble acquiring its 109(b) funding. The lack of "problems" stems from the wealth of knowledge which the Region 1 EPA has about the 109(b) program. EPA region 1 is monitoring 109(b) programs through the Engineering Section of its Municipal Facilities Branch. The Vermont application was drafted by the Environmental Engineering Division, Agency of Environmental Conservation of Vermont. There was, during the course of application, some concern over how to treat the Vermont application - that is, was the application really a construction grant or was it a training grant. The final resolution left the paperwork in the Engineering Section but allowed a hybrid application to be formulated. Some of the basic construction grant requirements were deleted, but additional narrative explanation of project intent was included.

In the past, the State of Vermont and local industry cooperated in providing training to the operators. The state paid field supervisors and others to instruct classes, and labor and industry provided training in their apprenticeship programs. Today, many of the industries, particularly power utilities, provide rent-free facilities at numerous statewide locations such that needed training can be brought to the operators at little or no cost.

The Vermont plan for 109(b) funds is to teach annually three 90-hour required training programs designed for Grade II certification and upgrading. The state, which governs the content and timing of the certification examinations, will adjust their schedule to the classes. The Rutland Area Vocational-Technical Center (RAVTC) will handle the presentation of the 90-hour course. The content of the classes will follow that of the "Sacramento" course.

The RAVTC was chosen for the center because of its technical training ability, its relatively centralized location and ease of access, and the proximity of seven wastewater treatment plants within a 15 mile radius.

The intent of the RAVTC program, in addition to the three 90-hour programs, is to furnish one 45-hour upgrade training course on wastewater treatment each year for a guaranteed three years; to provide twelve 15-hour skill improvement courses servicing each of six regions within the state each year for three years; and to provide up to three operators each year with a self-instruction entry level course equivalent to a 45-hour course.

Vermont, in its plans, recognized that many of the operators in the state have been "self-taught" and thus are in need of an upgrading in their understanding of the processes which they oversee. In addition, the Vermont plan will provide regionalized instruction, and is able to accommodate those persons who, for whatever reason, cannot leave their community to attend classes.

The state conducted an informal, though highly reliable, needs survey, which was handled by Mr. Francis (Sandy) Fyles, the architect of the 109(b) application. Mr. Fyles has compiled a list of cities with wastewater treatment facilities in the state. He has identified each operator by name and, through personal acquaintance, has perceived the needs of each. A chart has been developed which shows the level of each man, the future training needs, and the recommendation of Mr. Fyles. There are about 90 communities on the list with about 350 operators in the state. Table 31 illustrates the Vermont needs as perceived by the Agency for Environmental Conservation.

The grant application was prepared with the advice of a committee composed of state representatives, the Craft Committee at RAVTC, and the Operators Assocation of Vermont. The drafted document had to be reviewed by the Joint Fiscal Committee (FJC) of the state. The main concern of the state committee centered on the verification of need, which Mr. Fyles amply provided. The JFC required the Agency of Environmental Conservation to acquire a commitment from the Vermont State Department of Education to carry on the program in good faith. The commitment from the Education Department was obtained readily. Additionally, the JFC required third-party comment and, after receiving the comment, the application was recommended for approval.

The existing setup for the grant has the Agency of Environmental Conservation as the Vermont grantee. The state then will contract with the Rutland Area Vocational-Technical Center to accomplish the statewide training program.

Utilization of 109(b) Funds

The Agency of Environmental Conservation in Vermont has not yet received the funds.

Statewide Training Program

The plan is that RAVTC will present the required classes for the State of Vermont on a contract basis. The RAVTC has been designated as the administrative office for training programs for pollution control facility operators. RAVTC will be responsible for furnishing the instruction needed by prospective and existing operators to prepare themselves to pass the

TABLE 31

VERMONT AGENCY OF ENVIRONMENTAL CONSERVATION
ENVIRONMENTAL ENGINEERING DIVISION

ANTICIPATED WASTEWATER TREATMENT PERSONNEL STAFFING AND TRAINING NEEDS THROUGH CALENDAR YEAR 1984

	CALENDAR YEAR:						
MANPOWER NEEDS	1978	1979	1980	1981	1982	1983	1984
Forecast - New Construction Manpower Demand	3	4	20	15	9	4	5
Attritional and Recommended or Existing Needs	11	11	9	16	18	15	15
Total	14	15	29	31	27	19	20
TRAINING NEEDS							
Training Level: Entry Level	14	15	29	31	27	19	20
Skill Improvement	113	113	123	130	135	137	140
Upgrade Training	4	3	13	7	2	2	6
Total	131	131	165	168	164	158	166

NOTES:

(1) Skill Improvement is defined as the development and updating of knowledge and skills - skills to improve the performance of personnel in their current activities.

(2) Upgrade Training is defined as training to provide personnel with the knowledge and skills necessary for the safe and efficient operation and maintenance of their facility after it is upgraded.

(3) Skill Improvement Category - For planning purposes, meeting the conditions of Section 6(f) of the Operator Certification Program Regulations which notes the requirement for continued training as a condition of certificate renewal every two years, has been considered.

(4) The staffing and training needs tabulated above are based on the municipal sector with a 10% projected factor for the private and industrial sector.

TABLE 32

BUDGET ESTIMATE

	1979-1980	1980-1981	1981-1982	Total
I. INSTRUCTIONAL BUDGET:				
Wages:				
Teacher A - 10 months	$12,000.00	$12,600.00	$13,230.00	
Teacher B - 11 months (Work Experience/Upgrade)		$13,000.00	$13,650.00	
	$12,000.00	$25,600.00	$26,880.00	$64,480.00
Fringes:				
FICA	$ 730.00	$ 1,490.00	$ 1,575.00	
Insurance (Health)	$ 950.00	$ 1,900.00	$ 1,900.00	
Insurance (Life)	$ 45.00	$ 100.00	$ 125.00	
	$ 1,725.00	$ 3,490.00	$ 3,600.00	$ 8,815.00
Instructional Costs:				
Telephone	$ 200.00	$ 200.00	$ 200.00	
Mailing/Postage	$ 100.00	$ 150.00	$ 175.00	
Staff Training	$ 400.00	$ 400.00	$ 400.00	
Maintenance/Repair	$ 100.00	$ 125.00	$ 150.00	
Travel	$ 1,000.00	$ 1,500.00	$ 2,000.00	
Printing/Xerox	$ 100.00	$ 200.00	$ 200.00	
Office Supplies	$ 150.00	$ 200.00	$ 250.00	
Laboratory Supplies	$56,950.00	$	$	
Facility Consumables	$ 500.00	$ 1,000.00	$ 1,200.00	
Texts/Workbooks	$ 600.00	$ 1,000.00	$ 1,200.00	
Heat/Light/Space	In-kind	In-kind	In-kind	
Replacement of Laboratory Supplies	$ - 0 -	$ 1,691.00**	$ 1,691.00**	
	$60,100.00	$ 6,466.00	$ 7,466.00	$74,032.00
Indirect Costs	7,695.00	3,900.00	4,166.00	
YEARLY COST	$81,520.00	$39,456.00	$42,112.00	$147,327.00
				$ 15,761.00
PROGRAM TOTAL				$163,088.00

*Cost for all lab. supplies related directly to training/upgrading of students will be reviewed by Advisory/Craft Committee upon recommendation of the facility. $1,100 of Lab Supplies not eligible for indirect cost participation.

**$375.00 of annual replacement not eligible for indirect cost participation. Indirect cost rate 11.1%, base $141,992; Indirect Costs = $15,761.00.

statewide certification examination. In addition, RAVTC will offer the 15-hour seminar courses which operators are required to attend once each two years in order to qualify for state recertification.

The RAVTC will have the cooperation of the facilities of the other 15 vocational/technical schools in the State of Vermont. None of the other 15 schools teach wastewater oriented classes, but can be utilized by RAVTC personnel as satellite sites for the various contracted courses.

Most of the 109(b) funding will be used for instructor salaries. The budget estimate is seen in Table 32. The RAVTC will equip and furnish a wastewater laboratory so that each student in attendance will receive "hands on" experience in the laboratory setting (see Table 33).

TABLE 33

COST SUMMARY
RUTLAND REGIONAL VOCATIONAL CENTER
LABORATORY SUPPLIES

Tests & Supplies	*Cost*	*Yearly Replacement*
pH	2500.00	85.80
Temperature	82.50	21.00
D.O. Azide Method	431.40	165.50
D.O. Probe	3500.50	28.00
Oxygen Demand, Biochemical	2084.00	62.20
Oxygen Demand, Chemical	1879.40	261.20
Solids, Total	5500.00	57.20
Solids, Total Suspended	750.00	6.90
Solids, Total Suspended by Centrifuge	397.70	-
Solids, Settleable	318.00	-
Solids, Volatile Suspended	800.00	-
Chlorine	503.00	4.00
Alkalinity	204.00	-
Microscopic Examination	5400.00	25.90
Bacteria (Fecal Coliform, etc.)	4000.00	50.00
Sampling	244.00	31.50
Cleaning	250.00	18.00
Safety	3238.05	50.90
Beakers	750.00	32.60
Flasks	1220.00	55.10
Graduated Cylinders	750.00	75.70
Pipets	750.00	130.70
Rubber Stoppers	69.60	-
Miscellaneous	2528.85	-
Coagulation	550.00	-
Turbidity	738.20	-
Conductivity	933.85	-
TKN	1800.00	-
Ammonia, Nitrogen	3000.00	-
Nitrate and Nitrite, Nitrogen	2000.00	
Phosphate, Ortho and Total	500.00	
Refrigerator	350.00*	
Bench scales, treatment plant types	3750.00*	375.00*
Sub-Total	51,772.55	1,537.20
10% Factor for Cost Increases	5,177.25	153.70
TOTAL	56,949.80	1,690.90

* Not eligible for indirect cost participation

VIRGINIA

Summary

The Virginia Operator Training Centers (VOTC) are headquartered at the J. Sargeant Reynolds Community College (JSRCC) in Richmond, Virginia. The statewide wastewater training program in Virginia is conducted through a cooperative agreement between the state funded system of community colleges and the Virginia Water Control Board (VWCB). The agreement assigns responsibility for underwriting the costs of operation and maintenance of the training facilities to JSRCC and assigns the responsibility for administration of the program to the Division of Training of VWCB. Training programs are conducted at JSRCC and 16 other community colleges throughout the state. The VOTC also utilizes a van converted to a mobile laboratory to teach and/or supplement classwork at local WWTPs accessible to the community colleges.

JSRCC has received $250,000 in 109(b) funds. Utilization of existing and planned (under construction) space at JSRCC allowed Virginia to use the 109(b) funds to fortify their existing program by providing equipment and supplies for the center.

The center utilizes a short-course/modular format for its classes which are presented at community colleges throughout the state. The training program emphasizes the practical operation, maintenance, and laboratory testing associated with waste treatment. Virginia has the combined attributes of having a centralized facility, a network of training locations throughout the state, and a mobile laboratory incorporated in its program.

History of Application for 109(b)

The State of Virginia initiated a formal wastewater operator training program in 1970 through the Federally funded Public Service Careers Program. The training in this program was geared to entry level positions and aimed at providing opportunities for disadvantaged persons. Two major problems were discerned with this program: (1) the supportive staff required by the state was excessive, and (2) treatment plant superintendents were reluctant to pay premium salaries for highly trained, yet inexperienced operators. Furthermore, there was some resistance to state and Federal incursions into the responsibility of local government for selection and hiring of personnel. For these reasons, it was decided that training should be directed to enhancing the capabilities of operators already employed in the water pollution control field.

In 1973 the Board shifted to a Manpower Development Training Act (MDTA) funded program and concentrated on providing formal training augmented with on-the-job training. This was deemed to be a successful approach;

however, it became evident that it was not cost effective given the cost of travel, amount of time involved, and the small number of students benefiting from the program.

In 1974 the State of Virginia General Assembly authorized funds for a training staff of five, and training activities were shifted during 1974-1976 to providing 5-day short courses at selected community colleges throughout the state. Topic areas included: Certification Preparation, Activated Sludge, Trickling Filters, and Laboratory Analysis.

Recognizing that this program did not fully meet the training needs of the state, the Board initiated an investigation to identify a means to utilize Federal training funds authorized by the 109(b) amendments to FWPCA, PL 92-500. A private engineering firm was asked to investigate the alternative means through which other states approached treatment plant operator training.

An advisory committee was formed consisting of members of various organizations within the state including the Water Pollution Control Association, Association of Counties, Municipal League, Operator Association, and the Society of Professional Engineers. Many criteria were established in the selection process including: availability of representative domestic sewage flow; access to state residents; availability of short-term housing and restaurants; access of students to library; availability of sufficient land to develop the facility; amount of capital from sources other than the 109(b) program for construction; low operating costs; atmosphere conducive to training; propinquity to representative wastewater treatment facilities; and accessibility and use of industrial wastes for bench model treatability demonstrations and studies. The advisory committee reviewed the state's options and recommended that a cooperative agreement between the Board and the community college system be developed that would establish JSRCC as the central location for the physical facilities of the Virginia Operator Training Centers and would allow courses to be taught at any of the state's community colleges. JSRCC was assigned the responsibility for underwriting the costs of operation and maintenance of the training facilities, while the Board was given the task of administration of the program.

The Board's staff, in conjunction with JSRCC, developed an application for a 109(b) grant which was submitted to the U.S. EPA in late 1974. The grant application requested $230,000 for instrumentation and equipment for the training facility and $20,000 for modifications to the building that would provide raw domestic sewage for laboratory use. In early 1975, Virginia became the second state to have its grant request approved. While equipment procurement was initiated, agreements with the 16 community colleges participating in the program were finalized (see Figure 14).

The VOTC facilities at JSRCC were formally dedicated in December 1976. At this time, the operating agreement was amended to allow utilization of the equipment and facilities for water training programs. The State Health Department was recognized as the agency responsible for the administration of water programs. Due to lack of funding, the water training

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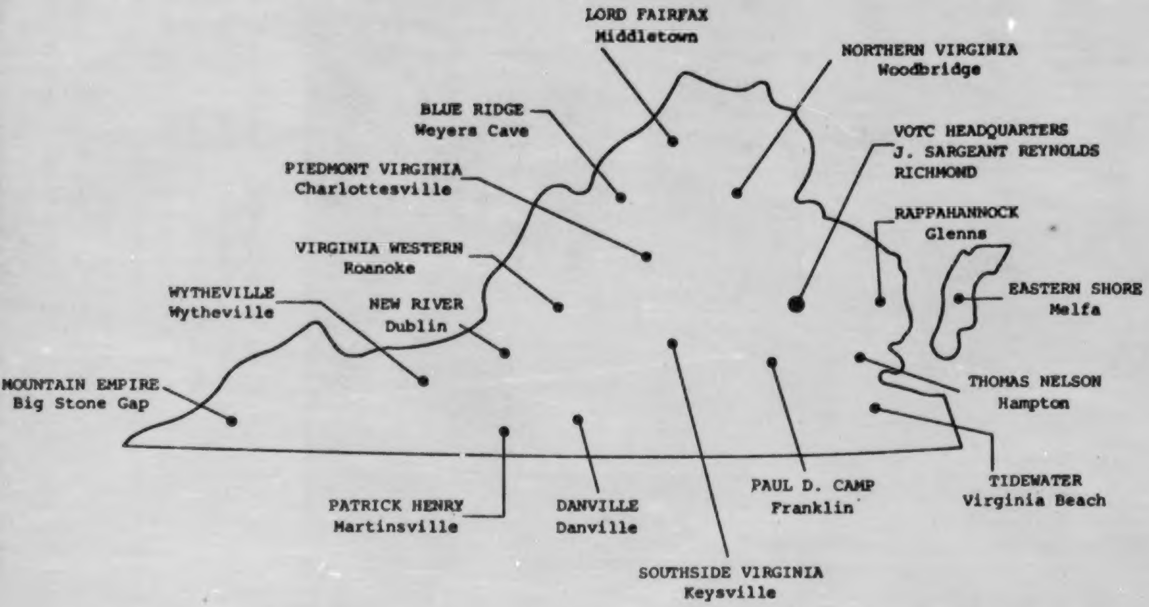

LORD FAIRFAX
Middletown
NORTHERN VIRGINIA
Woodbridge
BLUE RIDGE
Weyers Cave
VOTC HEADQUARTERS
J. SARGEANT REYNOLDS
RICHMOND
PIEDMONT VIRGINIA
Charlottesville
RAPPAHANNOCK
Glenns
VIRGINIA WESTERN
Roanoke
EASTERN SHORE
Melfa
WYTHEVILLE
Wytheville
NEW RIVER
Dublin
MOUNTAIN EMPIRE
Big Stone Gap
THOMAS NELSON
Hampton
TIDEWATER
Virginia Beach
PAUL D. CAMP
Franklin
PATRICK HENRY
Martinsville
DANVILLE
Danville
SOUTHSIDE VIRGINIA
Keysville

Figure 14. Locations of Community Colleges participating in the VOTC Program.

programs have not been as fully developed as the wastewater treatment program, and therefore, have not, as yet, realized a significant benefit from the availability of the facilities.

The operating agreement for the VOTC outlines the responsibilities of the three organizations involved: The Virginia State Water Control Board (VSWCB), the Virginia State Department of Health (VSDH), and J. Sargeant Reynolds Community College (JSRCC). Specifically, each organization has the following responsibilities and tasks:

(1) VSWCB - provides administrative, clerical and instructional staff for the VOTC statewide wastewater program, develops course materials, coordinates presentation of programs at participating colleges, identifies training needs, provides instructional staff or identifies acceptable adjunct instructional staff, maintains VOTC wastewater participant rosters and mailing lists, develops training schedules and program announcements, and recruits student participation.

(2) VSDH - water program duties and responsibilities parallel those of the VSWCB for the wastewater program.

(3) JSRCC - provides maintenance and operating funds for VOTC facilities and equipment, provides VOTC facilities including a 24 student-station laboratory, two classrooms and office facilities. The college maintains the option of using the facilities and equipment provided by the VOTC grant in its ongoing program when they are not being utilized for VOTC-related programs. The college receives all fees and state aid associated with student participation in the program conducted at JSRCC.

No formal written agreements exist between the Board and the other participating colleges, although the informal agreements state that the VOTC programs are part of the regular college schedule and require payment of regular tuition fees. All courses are credited to the college and used in determining the level of state funding support that the college receives. In return, the colleges provide classroom and laboratory facilities, equipment, and in some cases, underwrite the cost of an instructor if the minimum class size of the college is met and an approved instructor is available. The VOTC provides an instructor if these two conditions are not met. The necessary equipment that is unavailable at any of the colleges is provided by the VOTC from the central facility at JSRCC.

The advisory committee that had been involved in the evaluation of the state's options has been expanded to include members from the following organizations: Virginia State Water Control Board, Virginia Community College System, Virginia State Department of Health, J. Sargeant Reynolds Community College, Virginia Water Pollution Control Association, Virginia Municipal League, Virginia Association of Counties, Virginia Operators Associaton, Virginia American Water Works Association, and the Virginia Society of Professional Engineers. The committee is consulted on a routine basis and has provided valuable guidance during implementation of the program. The members' direct involvement has generated a greater acceptance and support base for the VOTC program.

Utilization of 109(b) Funds

By selecting JSRCC as the location of the VOTC, Virginia was able to allocate approximately $230,000 of the $250,000 it has received under the 109(b) grant to purchase instruments, equipment, supplies, etc. to equip the training center. The VOTC facilities were able to take advantage of existing classroom and office areas, as well as fit into plans for imminent expansion. As a result, the VOTC was a beneficiary of a $113,000 construction grant from the state to JSRCC.

Equipment purchased with 109(b) grant funds and located in the VOTC facility includes: general laboratory supplies and equipment necessary to support a 24 student-station laboratory to perform all the process control and effluent monitoring analyses associated with wastewater treatment; analytical instruments for the more sophisticated analyses, including atomic absorption spectrophotometer with graphite furnace, total organic carbon analyzer, gas chromatograph, aquator, 12 spectrophotometers, 12 pH meters and dissolved oxygen meters, and six amperometric titrators. Instrument selection, except for the delicate instruments, was based on portability since the instruments would be transported to the outlying community colleges at various times. Other equipment purchased includes tools, demonstration models of pumps and other mechanical equipment, bench scale models of various treatment processes and audio-visual equipment for self-study type programs.

The remainder of the funds have been allocated for a pump station to pump raw domestic wastewater into the VOTC facility at JSRCC. Due to delays in the construction of the expansion, the VOTC is still temporarily using other space at the college. Design changes in the pump station that will be used to deliver raw domestic wastewater to the laboratory and lessened construction needs have resulted in lower than expected bids for this part of the facility.

A floor plan of the office, classroom, and laboratory space that will be occupied by the VOTC at JSRCC is shown in Figure 15. The total designated area of the training facility is 2,578 square feet with a 1,208 square foot wastewater laboratory, two classrooms totaling 864 square feet, office space of 424 square feet, and storage space of 83 square feet.

Statewide Training Program

The VOTC provides an average of 60 modules of instruction lasting from two to five days to more than 600 participants per year. Special interest seminars are presented four to six times per year.

The VOTC relied upon a survey of plant owners and managers in its selection of the modular format for its training program. Full time classes (8 hours/day) lasting two to five days were preferred by the

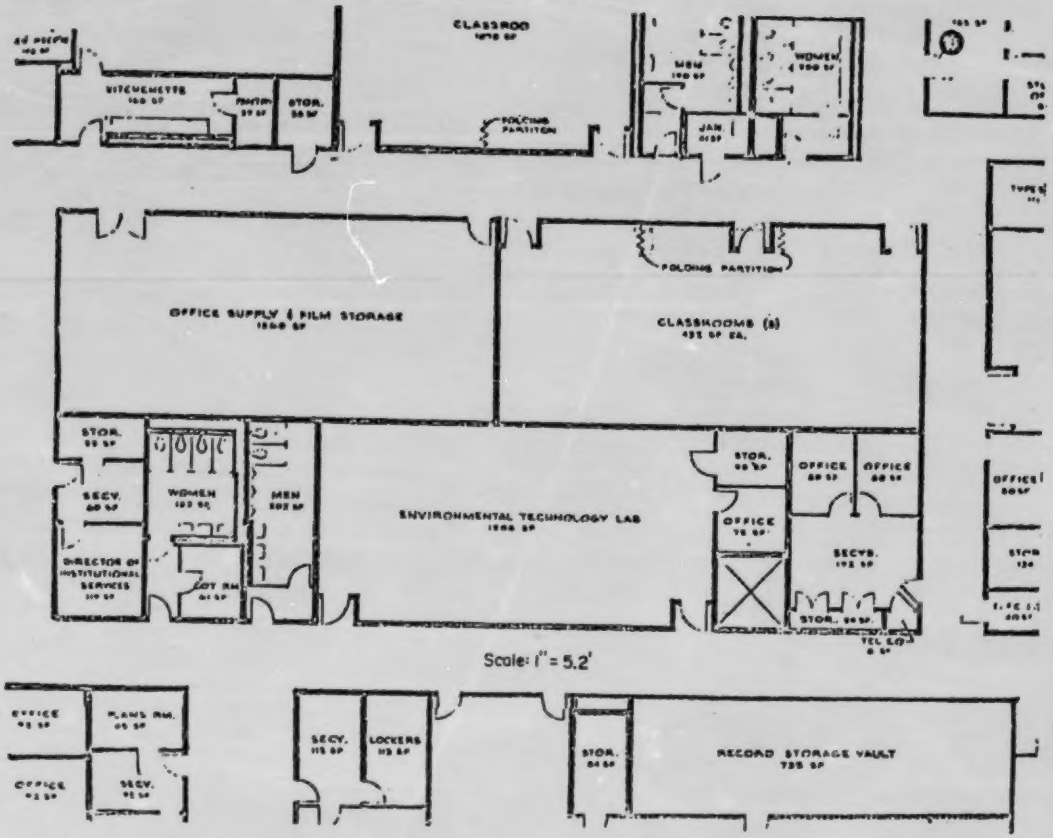
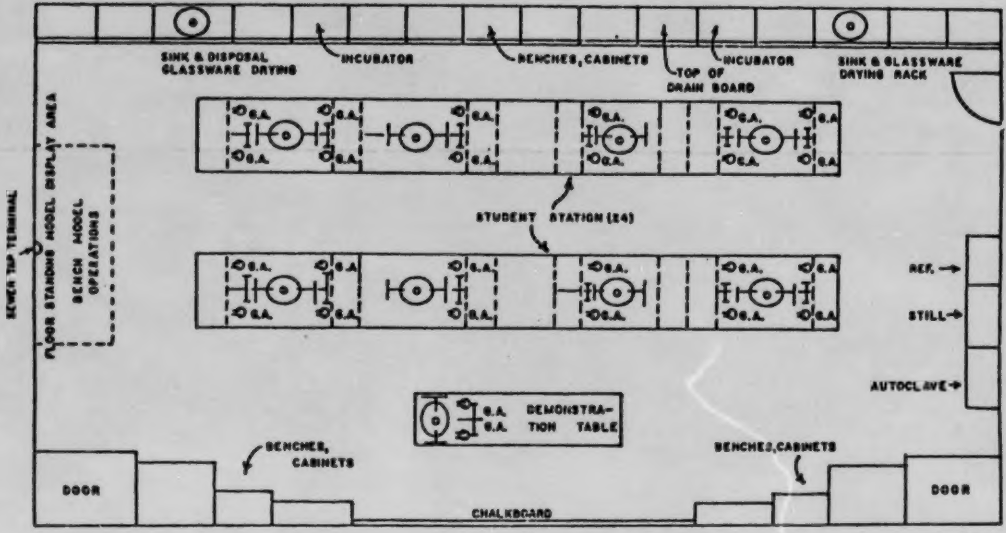
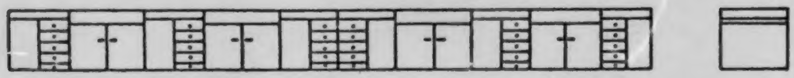

KITCHENETTE
PANTRY
STOR.
CLASSROOM
FOLDING PARTITION
MEN
WOMEN
JAN.
OFFICE SUPPLY & FILM STORAGE
FOLDING PARTITION
CLASSROOMS (3)
STOR.
SECY.
DIRECTOR OF INSTITUTIONAL SERVICES
WOMEN
MEN
COT RM
ENVIRONMENTAL TECHNOLOGY LAB
STOR.
OFFICE
OFFICE
OFFICE
SECYS.
STOR.
TEL CO
OFFICE
Scale: 1" = 5.2'
OFFICE
PLANS RM.
OFFICE
SECY.
SECY.
LOCKERS
STOR.
RECORD STORAGE VAULT

Figure 15 FLOOR PLAN OF VOTC FACILITY AT JSRCC

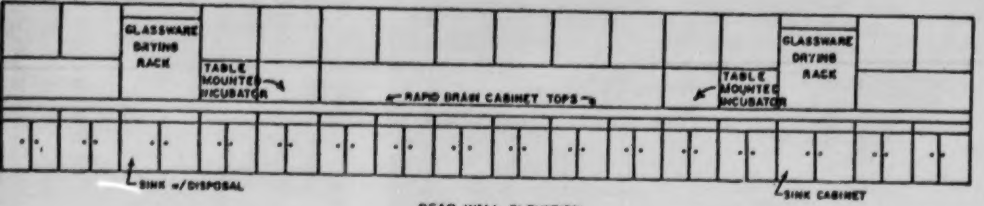

SINK & DISPOSAL
GLASSWARE DRYING
INCUBATOR
BENCHES, CABINETS
TOP OF
DRAIN BOARD
INCUBATOR
SINK & GLASSWARE
DRYING RACK
G.A.
STUDENT STATION (24)
REF.
STILL
AUTOCLAVE
SEWER TAP TERMINAL
FLOOR STANDING MODEL DISPLAY AREA
BENCH MODEL
OPERATIONS
G.A.
G.A.
DEMONSTRATION TABLE
BENCHES,
CABINETS
BENCHES, CABINETS
DOOR
CHALKBOARD
DOOR

Scale: 1" = 5.2'



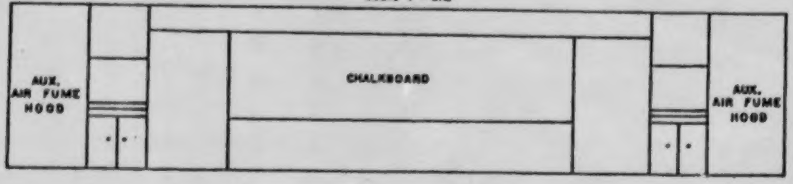
STUDENT STATION CABINETRY

Figure 15 (Continued)


GLASSWARE DRYING RACK
TABLE MOUNTED INCUBATOR
RAPID DRAIN CABINET TOPS
TABLE MOUNTED INCUBATOR
GLASSWARE DRYING RACK
SINK w/DISPOSAL
SINK CABINET

REAR WALL ELEVATION

Scale 1" = 5.2'


AUX. AIR FUME HOOD
CHALKBOARD
AUX. AIR FUME HOOD

FRONT WALL ELEVATION

Figure 15 (Continued)

plant owners and managers because this system was thought to be less disruptive to plant operations. Due to the short duration of the modules class scheduling is flexible and can be modified to accommodate the needs of the trainees. The modular approach is considered to have the following advantages: (1) instruction is concentrated in a short time period, (2) the student (and his supervisor) can select the modules considered most beneficial for his situation, (3) the system's flexibility allows new programs to be developed to meet perceived training needs, and (4) modules can be structured around programmed learning devices, making training more available to the operators of small treatment plants who may not be able to leave the plant for even short periods of time. A listing of modules currently available through the VOTC is presented in Table 34.

All courses offered by the VOTC are college level courses with designated college credit (usually 1 or 2 credits). All credits can be applied to the academic certificate or associate degree programs of the community college as well as the multi-level certificates of the VOTC wastewater program.

The VOTC program is geared to provide as much hands-on training as possible. More than 50 percent of the student class time is allocated to performing calculations and lab tests associated with the topic area. If possible, on-site instruction at a local treatment plant that uses the treatment process being studied is conducted. If local treatment plants are willing, as most are, the VOTC provides a mobile laboratory (owned and operated by the SWCB) for use at the site.

Each of the courses offered has its own manual which is supplied free of charge to the students. Each manual is a synthesis of existing information from many sources. The manuals provide the operators with materials that may not be available to them locally.

Only those fees required by the community college system are currently collected from the students. Fees include a one-time registration fee of $5.00 and a tuition fee of $8.50 per credit hour ($28.00/credit hour for non-residents). Survey results indicate that about 95 percent of the participants receive salary and travel expenses as well as reimbursement for course fees. Due to the network of community colleges involved in the VOTC program, all treatment plant operators are within an hour's traveling time from a training site.

The VOTC has one part-time and seven full-time staff members. The staff consists of one director (state supported), three instructors (two Federally supported, one state supported), two laboratory personnel (state supported), and one secretary (state supported). Instructors are required to hold a Bachelor's degree in science or engineering with one year of related experience in treatment plant operation. New instructors receive intensive on-the-job training with an experienced instructor before teaching on their own. Due to the salary structure and the large amount of travel required, the turnover rate for instructors is approximately 18-24 months.

TABLE 34. VOTC TRAINING MODULES

- Basic Certification Examination Preparation
- Water Supply and Wastewater History and Legislation
- Introduction to Water Supply and Water Treatment
- Introduction to Wastewater Treatment
- Advanced Certification Examination Preparation
- Preliminary, Primary Treatment and Flow Measurement
- Trickling Filter
- Chlorination
- Activated Sludge
- Stabilization Ponds and Lagoons
- Anaerobic Digestion
- Chemical Conditioning, Elutriation, and Thickening
- Sludge Dewatering
- Heat Drying, Heat Treatment, Chemical Oxidation
- Plant Performance Analysis
- Trickling Filter and Lagoon Process Control
- Activated Sludge Process Control, Part I
- Activated Sludge Process Control, Part II
- Concepts of Chemistry
- Concepts of Quantitative Analysis
- Concepts of Organic Chemistry
- Biochemical Oxygen Demand
- Phosphate Testing
- Nitrogen Testing
- Acidity, Alkalinity, pH and Volatile Acids Determination
- Solids Determinations
- Fecal Coliform Testing
- Supervised Study
    - Supervised Study, Basic Wastewater Testing
    - Supervised Study, Advanced Wastewater Testing
    - Supervised Study, Instrumental Analysis
    - Supervised Study, Fecal Coliform
    - Supervised Study, Advanced Waste Treatment - An Overview
    - Supervised Study, Advanced Waste Treatment - Phosphorus Removal
    - Supervised Study, Advanced Waste Treatment - Filtration
    - Supervised Study, Carbon Adsorption
    - Supervised Study, Advanced Waste Treatment - Nitrogen Removal
    - Supervised Study, Preventive Maintenance Program Planning
    - Supervised Study, Pump Maintenance and Troubleshooting
    - Operations and Maintenance Manual Preparation Workshop
- Non Credit Workshops and Seminars
    - Sewerage Regulation Seminar
    - Safety Program

The primary activity of the training group is the training of students using the modular technique, but the staff is also involved in several other activities. These activities include:

(1) Development and presentation of special programs of training and on-site assistance for the small rural plant operator who cannot attend the VOTC programs;

(2) Administration of an in-state version of the California State University correspondence program

(3) Technical and laboratory assistance to plant personnel whose facilities are experiencing difficulties;

(4) Provision of staff training in operations, maintenance, and trouble-shooting for members of the SWCB involved in the evaluation of wastewater treatment facilities; and

(5) Supportive services for the State Operator Certification Board.

Obtaining information on the costs of operating the VOTC is difficult because the center does not appear as a line item in the budgets of the 16 participating communitv colleges, the JSRCC, or the SWCB. The SWCB provided at least $85,000 in both 1979 and 1978 for staff salaries, travel, and other expenses. The community colleges, JSRCC and the SWCB provide utilities, maintenance, and materials and supplies as part of their operating budgets. The VOTC has received $81,475 in 104(g)(1) training grant funds since 1976.

WASHINGTON

Summary

Washington recently submitted a facility plan for wastewater operator training to be funded by 109(b) monies. Washington has requested grant funding of $500,000, and is in the engineering design phase.

History of Application for 109(b)

This information was not available at the time of this report. The state of Washington acquired 109(b) funds after the 109(b) visitation schedule for this grant had been implemented. The information contained in this summary was provided by the Washington Environmental Training Resource Center, Project Director, Mr. Fred Delvecchio.

Proposed Utilization of 109(b) Funds

Wastewater operator training in the state of Washington has been ongoing since the 1960's. However, it was not until 1972, when Washington passed mandatory certification legislation, that formal backing and impetus was provided. In 1973, the State Department of Ecology created the position of State Training Coordinator to organize, develop and promote efforts to provide necessary and sufficient training opportunities for wastewater operators. By 1978, operator training coordination had proceeded to the point of planning for permanent facilities and consistent support to meet statewide operator training needs.

Washington developed a facility plan with the participation of the Washington Department of Ecology, the Department of Social and Health Services Water Supply Program, the State Board of Community Colleges, and the U.S. Environmental Protection Agency which provided review and direction.

Washington has, after very careful deliberations, opted to construct an administrative center which utilizes existing classrooms, laboratories, shops and wastewater treatment plants throughout the state for training. The capital investment anticipated in 1978 dollars was a total of $910,000, with $500,000 in 109(b) funds requested to assist Washington with implementing their plan. The annual O&M costs were anticipated at $240,000. The preliminary estimate for a 3,920 square foot building to include shop and equipment storage, instructors' offices, secretarial area and director's office, and for a 3,000 square foot parking area, was about $460,000.

The overall plan to be implemented in Washington includes the 10 program recommendations shown in Table 35.

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TABLE 35

PROGRAM RECOMMENDATIONS FOR WASHINGTON STATE WATER/WASTEWATER TRAINING

1. The program should continue with a centralized administrative system and a decentralized delivery system.

2. The program should concentrate primarily on employed operators and present the opportunity for either a one-year certificate obtained in a full time program or obtained in evening courses. The continuing education requirements of certified operators must be met.

3. More maintenance oriented courses should be made available.

4. Every effort should be made to provide courses throughout the state wherever 8 to 10 operators can be brought together, particularly in remote locations.

5. Troubleshooting of the plants should continue to be a function of the traveling operators, but more emphasis on instruction and training of operators should occur.

6. Alternate D, a single administrative center using the existing state community colleges and other public buildings and treatment facilities for instructional and training purposes, is the preferred method for accomplishing the goals of the training program.

7. Statewide coordinating costs should be funded through the existing inter-agency funding agreement. Instructional costs should be borne by the state community colleges using the existing state supported system based on the Full Time Equivalent formulae.

8. The state administrative center should be located at Green River Community College, Auburn, Washington.

9. Regular operator training courses should continue to be provided at Green River Community College, Spokane Community College, Yakima Community College, Peninsula Community College, Clark County Community College, Walla Walla Community College, Centralia Community College, Skagit Valley Community College, Wenatchee Community College, and possibly in Chelan.

10. This program should be put into effect and the necessary support facility and equipment be obtained to provide results in the form of better effluents as soon as practicable.

Statewide Training Program

The following is taken directly from Facility Plan - Wastewater Operator Training for State of Washington, November, 1978 (Brown and Caldwell), provided by Mr. Fred Delvecchio.

The state plan for wastewater operator training was defined in 1978 by the Program Director for Water and Wastewater Training. This plan forms the basis for training programs now in existence and is the basic guide for establishing facilities and planning for training programs through the planning period.

The state training plan consists of three integral elements: coordination, development, and promotional activities of the State Training Coordinator's office, entry level programs offered through the State community college system, and continuing education-skill upgrading activities developed, coordinated and presented under the direction of the State Training Coordinator.

Entry Level Training Programs--

Entry level training is offered through the community college system of the State of Washington. As need develops, specific programs for entry level water and wastewater operator training may be developed in the form of one-year vocational training, or two-year associate applied science degree training. Courses of the vocational program are to be directed to the actual operation and maintenance of water and wastewater systems and system components as well as mathematical, physical, mechanical, chemical, bacteriological, and biological fundamentals that govern the efficiency of each system component. Complex interrelationships between water supply, wastewater disposal, and other aspects of environmental quality are to be considered as are complexities of managing people, funds, records and reports. Classroom and laboratory training are to be supplemented by selected field trips, inspections, and to the extent possible, practical working experience.

Community College System--The Washington community college system is designed to provide vocational education throughout the state. The system includes 27 community colleges in 20 community college districts as shown in Figure 16. The system offers some 600 vocational education programs providing for employment in 144 different occupations. Programs are designed primarily as one and two-year curricula designed to provide entry level skills for initial employment in a variety of fields.

Eight regular programs offered at one or more of 11 different community colleges have been identified as providing basic skills suitable for employment in wastewater maintenance and operations positions. The number of program completions and total employment placements during the period 1972 to 1976 for the eight programs are listed in Table 36.

Private Schools, Institutes--Several private schools or technical institutes in the state provide similar vocational type training programs in the wastewater operations field. Among these are the Bates Vocational

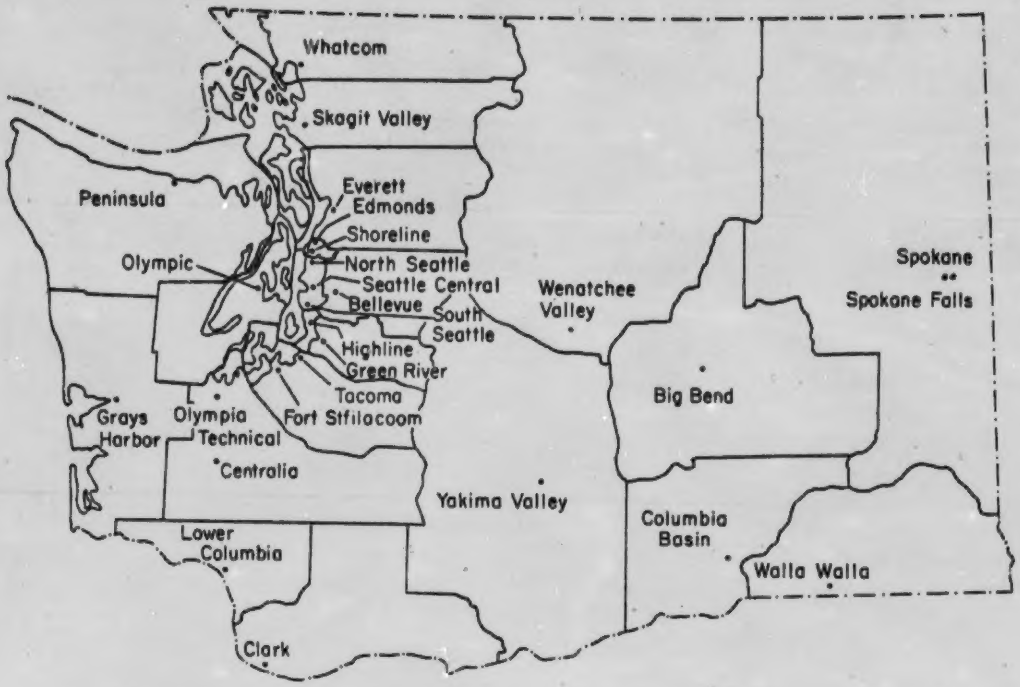
Whatcom
Skagit Valley
Everett
Edmonds
Peninsula
Shoreline
Olympic
North Seattle
Seattle Central
Bellevue
South Seattle
Highline
Green River
Tacoma
Fort Steilacoom
Grays Harbor
Olympia Technical
Centralia
Lower Columbia
Clark
Wenatchee Valley
Big Bend
Yakima Valley
Columbia Basin
Walla Walla
Spokane
Spokane Falls

Figure 16. Community Colleges in Washington.

TABLE 36. COMMUNITY COLLEGE PROGRAMS RELATED TO W/WW OPERATIONS

Program	Community College	Program Completions 1972-1976
Natural Resources	Spokane	81
Water Resources	Spokane	30
Chemical Technology	Shoreline	3
	Seattle Central	35
Civil Engineering Technology	Bellevue	37
	Centralia	40
	Clark	40
	Green River	43
	OTCC	42
	Shoreline	41
	Skagit Valley	39
	Spokane	45
	Walla Walla	28
	Yakima Valley	61
Environmental Technology	Shoreline	6
Oceanographic Technology	Shoreline	63
Industrial Maintenance Technology	Centralia	22
	Walla Walla	6
Water/Wastewater Technology	Green River	15

Institute in Tacoma and the Perry Institute in Yakima.

Continuing Education, Skill Upgrading--

The State Training Coordinator has primary responsibility for developing and coordinating the required curriculum and for providing training to meet continuing education requirements. The continuing education skill upgrading program consists of three primary elements: community college courses, special seminars and workshops, and on-site instruction provided by roving instructional personnel. All these are based on the same modular instructional units.

State Training Coordinator Activities--A state training center as such does not exist at the present time. Since 1973 the Department of Social and Health Services, the Department of Ecology, and the State Board of Community Colleges have jointly contracted with a State Training Coordinator to satisfy desired functions for state training promotion development and coordination. At the present time, the role of the State Training Coordinator includes six major items, as listed below.

(1) Scheduling and coordination of training courses.
(2) Maintenance of the Washington Operator Training Resource Center.
(3) Public relations.
(4) Newsletter.
(5) Maintenance of CEU records for certified operators.
(6) Training of instructors.

Course scheduling and coordination around the state is a continuous function of the coordinator. The guiding principle used is to maintain flexibility to accommodate needs and make use of resources avialable in various areas of the state. In some areas of the state, individual professionals or local sections of the professional associations arrange all course details and simply notify the coordinator of the course, time, location, and request needed materials. In other areas, all course planning is arranged from the coordinator's office. A typical example of the range and type of course offerings is provided in the current course schedule covering the spring and early summer period of 1978, Table 37. A range of 15 different courses offered at 12 different locations makes up the total course offering of 21 different courses. Course formats include:

(1) Quarter-long daytime community college classes
(2) Quarter-long community college evening classes
(3) Single day seminars
(4) Three-day seminars
(5) Single evening seminars.

A survey of community colleges offering wastewater oriented training courses conducted in March 1978 generated information presented in Table 38. This table presents the most comprehensive summary of community college operator training opportunities available.

It is estimated (K. Rausch, State Training Coordinator) that the total

TABLE 37. STATE COORDINATED COURSE OFFERING, SPRING 1978

Course Title	Location	Format	Start
Environmental Pollution and Its Control	Olympia Technical Community College, Olympia, WA	Evenings	Spring
Plant Operations I	Green River Community College Auburn, WA	Days	Spring
Plant Operations II	Green River Community College Auburn, WA	Days	Spring
Plant Monitoring and Test Procedures	Green River Community College Auburn, WA	Days	Spring
Plant Maintenance	Green River Community College Auburn, WA	Days	Spring
Activated Sludge, Process Control	Green River Community College Auburn, WA	Evenings	Spring
Pumps and Pumping	Green River Community College Auburn, WA	Evenings	Spring
Math for Water and Wastewater Personnel	Clark Community College Vancouver, WA	Evenings	Spring
Basic Wastewater	Centralia College Centralia, WA	Evenings	Spring
Cross Connection Control Refresher	Alderwood Water District Lynnwood, WA	Days	March 13
Cross Connection Control Course	Modern Electric Water Co. Spokane, WA	Days	March 27
Cross Connection Control Course	Tacoma City Light Spokane, WA	Evening	March 28, 29,30,31
Cross Connection Control Course	Tacoma City Light Tacoma, WA	Evening	April 3
Cross Connection	Vancouver, WA To be arranged	Days	June 12, 13,14,15
Pumps and Pumping	Green River Community College Auburn, WA	Evenings	Spring
Water/Wastewater Math	Clark Community College Vancouver, WA	Evenings	Spring
Cross Connection Control Course	Richland, WA To be arranged	To be arranged	

TABLE 38. WASTEWATER TECHNICAL CLASSES OFFERED AT WASHINGTON COMMUNITY COLLEGES, 1974-1978

Community College	Course Title	Date	Attendance
Wenatchee	Wastewater Technology	December 3, 1974	27
	Engineering Wastewater	March 5, 1976	18
	Engineering Wastewater	January 20, 1976	17
Centralia	Wastewater Labs (3)	Winter Qtr. 74/75	70
	Applied Hydraulics	Winter Qtr. 75/76	14
	Secondary Treatment Workshop	Winter Qtr. 75/76	55
	Applied Math	Fall Qtr. 76/77	15
	Secondary Treatment	Winter Qtr. 76/77	14
	Secondary Treatment	Spring Qtr. 76/77	11
	Wastewater Workshop	Winter Qtr. 77/78	71
	Basic Wastewater	Spring Qtr. 77/78	13
	Wastewater Workshop	Spring Qtr. 77/78	50
Yakima Valley College	Water/Wastewater Collection, etc.	Winter/74	10-12
	Water/Wastewater Collection, etc.	Winter/75	10-12
	Water/Wastewater Collection, etc.	Winter/76	10-12
	Water/Wastewater Collection, etc.	Winter/77	10-12
	Water/Wastewater Collection, etc.	Spring/78	10-12
Clark	Wastewater Operators	Spring/76	32
	Applied Hydraulics	Fall/76	18
	Wastewater Math	Spring/77	20
	Water Quality Math	Spring/78	15
Columbia Basin	Wastewater (2 courses)	1975-76	38
	Cross Connection	1977-78	25
Green River	Cross Connection Control (Spokane)	May, 1977	20
	Cross Connection Control (Seattle Water Dept.)	October, 1976	20
	Cross Connection Control Seminar	March 22-25, 1977	20
	Cross Conn. Refresher Seminar (Tacoma Water)	May 3, 1977	20
	How to Teach a Course (Cross Connections)	September 20-23, 1976	20
	Cross Connection Control Workshop	March 23-26, 1976	20
	Cross Connection Control Workshop	September 2-5, 1975	20
	Cross Connection Control (Alderwood Water Div.)	March 7-29, 1978	20

(Continued)

TABLE 38 (Continued)

Community College	Course Title	Date	Attendance
Green River (continued)	Cross Connection Control (Tacoma)	April 3-26, 1978	20
	Cross Connection Control (Spokane)	March 28-31, 1978	20
	Cross Connection Control (Alderwood Water Dis.)	Feb. 7 - Mar. 1, 1978	20
	Cross Connection Control (Seattle Water Dept.)	October 4-26, 1977	20
	Cross Connection Control (Richland)	Oct. 31 - Nov. 2, 1977	20
	Cross Connection Control (Spokane)	September 12-28, 1977	20
	Water/Wastewater	Fall 1973/74	9
	Cross Connection Control	Fall 1973/74	11
	Water/Wastewater Sciences	Fall 1973/74	9
	Water and Wastewater Chemistry	Spring 1973/74	5
	Water/Wastewater Sciences	Fall 1974/75	16
	Basic Wastewater Treatment Operation	Fall 1974/75	3
	Physics and Mechanics	Fall 1974/75	2
	Water and Wastewater Chemistry	Fall 1974/75	2
	Chemical Test Procedures	Fall 1974/75	1
	Environmental Problems	Fall 1974/75	2
	Basic Wastewater Treatment Operation	Winter 1974/75	3
	Applied Hydraulics	Winter 1974/75	2
	Chemical Test Procedures	Winter 1974/75	5
	Aquatic Biology	Winter 1974/75	12
	Environmental Problems	Winter 1974/75	3
	Physics and Mechanics	Spring 1974/75	11
	Water/Wastewater Chemistry	Spring 1974/75	9
	Applied Hydraulics	Spring 1974/75	17
	Wastewater Treatment	Spring 1974/75	17
	Water/Wastewater Sciences	Spring 1974/75	10
	Cross Connection Control	Fall 1975/76	20
	Chemical Test Procedures	Fall 1975/76	10
	Aquatic Biology	Fall 1975/76	14
	Biological Test Procedures	Fall 1975/76	7
	Collection and Distribution	Fall 1975/76	9
	Pump and Pump Controls	Fall 1975/76	28
	Physics and Mechanics	Winter 1975/76	30
	Water/Wastewater Chemistry	Winter 1975/76	30
	Biological Test Procedures	Winter 1975/76	24
	Wastewater Treatment	Winter 1975/76	18
	Advanced Lab Procedures	Winter 1975/76	10
	Utility Management	Winter 1975/76	43

(Continued)

TABLE 38 (Continued)

Community College	Course Title	Date	Attendance
Green River (continued)	Cross Connection Control	Spring 1975/76	28
	Applied Hydraulics	Spring 1975/76	26
	Chemical Test Procedures	Spring 1975/76	20
	Wastewater Treatment	Spring 1975/76	20
	Collection Distribution System	Spring 1975/76	11
	Advanced Treatment Operations	Spring 1975/76	19
	Environmental Problems	Spring 1975/76	26
	Chemical Tests	Fall 1976/77	4
	Physics	Fall 1976/77	19
	Water/Wastewater	Fall 1976/77	1
	Aquatic Biology	Fall 1976/77	11
	Advanced Lab	Fall 1976/77	11
	Water/Wastewater	Fall 1976/77	3
	Independent Study	Fall 1976/77	1
	Advanced Lab Procedures	Winter 1976/77	11
	Water/Wastewater Work Study	Winter 1976/77	3
	Aquatic Biology	Winter 1976/77	11
	Physics and Mechanics	Winter 1976/77	19
	Chemical Test Procedures	Winter 1976/77	4
	Cross Connection	Spring 1976/77	21
	Collection Systems	Spring 1976/77	13
	Collection Systems	Spring 1976/77	20
	Basic Mech/Elec.	Spring 1976/77	20
	On-the-Job	Spring 1976/77	7
	Plant Operation	Spring 1976/77	8
	Plant Operation	Spring 1976/77	5
	Plant Operation	Spring 1976/77	13
	Pumps and Pumping	Spring 1976/77	17
	Plant Operation	Fall 1977/78	1
	Plant Operation	Fall 1977/78	5
	Plant Operation	Fall 1977/78	5
	Math for Operators	Fall 1977/78	1
	Plant Monitoring	Fall 1977/78	2
	On-the-Job Training	Fall 1977/78	2

training offering in a single year at the present time serves approximately 1,500 wastewater personnel. Figures compiled during the 1975-1976 academic year indicate that 42 wastewater courses were held at 24 community colleges. In addition, 10 statewide workshops were held in five regional locations.

The Washington Environmental Training Resource Center was originally established with funds from the Voluntary Wastewater Certification Board. The purpose of the resource center is to provide operators in the state with appropriate educational resources, including training manuals, correspondence courses, video courses, etc. Goals of the resource center are to provide all learning resources for wastewater training required in the state. Materials should include manuals for instructors and students, correspondence courses including instructional and grading materials, audio-visual materials, and workshop kits in the form of complete packages to be available for presentation at various locations in the state.

The objective of the public relations role is to demonstrate to operators that the state agencies and the coordinator's office are set up to serve their training needs. Public relations functions are also carried on to a limited extent on a national scale to provide useful exchange of information and materials with other statewide training programs. Public relations broachures and information materials are available through the State Training Coordinator's office.

A statewide training newsletter is prepared and distributed on a quarterly basis. The newsletter is distributed as widely as possible to cover all operations and maintenance personnel and individuals concerned with training. The newsletter advertises the current schedule of training courses and news items of interest to both operators and training personnel.

The State Training Coordinator has responsibility for administering the continuing education unit (CEU) system. Course materials and other training opportunities must be evaluated and assigned appropriate CEU's. Records are kept of attendance at approved training courses and activities. Records are maintained for each certified operator in the state for the purpose of determining compliance with mandatory certification guidelines.

The State Training Coordinator provides an informal employment referral service to wastewater personnel and employers in the state. Employee resumes and applications are maintained in the Green River Community College placement center. Employment opportunities and job notices are mailed to those expressing interest in the service. Also, employment opportunities are advertised in a special section of the regular newsletter.

Up to the present time, the State Training Coordinator has not been involved significantly in the training of instructional personnel. Increasing needs for training because of increasing numbers of operations personnel and mandatory certification requirements will require more instructional personnel than in the past. Instructors have typically been professionals in the wastewater field, not necessarily trained as instructors or teachers. The quality and consistency of training courses provided through the state training progam and the State Training Coordinator will become increasingly

The professional associations in water supply and wastewater have contributed significantly in the past to the total operation and maintenance course offerings. These courses are tvpically developed by the national professional association, such as the American Water Works Assocation, the Water Pollution Control Federation, or the American Public Works Association, and are provided along with detailed instruction materials. Such courses can generally be arranged by local sections of the professional associations upon guaranteeing a specified minimum number of attendants. These courses are offered on a non-profit pay-for-service basis with registration fees typically from $10 to $100. An example of a current course of this type is the two-day Chlorination Workshop sponsored by the American Water Works Association (AWWA) offered in Tacoma in April of this year.

A relatively recent development for providing training opportunity to operation and maintenance personnel has been to orient professional association local section meetings towards an operation and maintenance subject and allow continuing education credit to operation and maintenance personnel attending the meetings on a regular basis. An example of this type of training is at the King County Section of the American Water Works Association. This section has historically had significant attendance by operation and maintenance personnel.

Training courses have been provided in the state by both public and private agencies from outside the state. An example of such courses that contribute to overall operation and maintenance training needs and are provided with continuing education unit credit are the Membrane Filter Techniques courses offered by the Millipore Filter Company, listed in Table 39 as a portion of the 1975 Spokane area course offering. The Linn-Benton Community College of Oregon has presented a series of training courses throughout the State of Washington. Linn-Benton courses on NPDES procedures were given in Moses Lake in 1975, Coeur d'Alene in 1975, and Moscow, Idaho in 1977 (serving the southeastern Washington area).

Correspondence Courses--Correspondence courses provide operation and maintenance training opportunities that are particularly useful to personnel in remote areas of the state. A variety of highly regarded correspondence courses is available with three primary sources being Clemson University, Sacramento State College, and Michigan State University's wastewater management course. The Washington Environmental Training Resource Center maintains a stock of both Clemson and the Sacramento courses. These are available on demand from the center and administered through it. The Clemson and Sacramento courses have also been administered by several individuals in the state. District engineers for the DSHS Water Supply Program in Spokane and Seattle have, on their own, maintained a stock of the Clemson course and provided instructional and grading services on demand to local operation and maintenance personnel. At least one additional municipal wastewater utility engineer has provided the Sacramento courses to operation and maintenance personnel in his department. The correspondence courses should continue to be a logical and useful portion of the overall state coordinated training services.

TABLE 39. SPOKANE AREA TRAINING COURSES, 1974-77

Course Title	Location	Date	Number Attending
Basic Lab Techniques	SCC	9/12 and 9/13/74	25
Basic Wastewater	SCC	10/8 to 12/17/74	46
Total			71
Basic Math	SCC	2/2 to 4/1/75	17
Membrane Filter Techniques	SCC	3/11 and 3/12/75	36
Membrane Filter Techniques	CBC	3/13/75	19
Basic Wastewater	W^{2}CC	4/1/75	11
Intermediate Wastewater	W^{2}CC	4/1 to 5/27/75	12
Wastewater Chemistry	SCC	4/8 to 5/27/75	16
Wastewater Chemistry	CBC	3/10 and 3/17/75	20
Wastewater Chemistry	SCC	4/21 and 4/28/75	21
Basic Wastewater	Colfax	5/6 to 5/20/75	10
Basic Wastewater	SCC	9/20 to 12/13/75	19
Basic Math	SCC	9/20 to 12/13/75	15
Total			196
Wastewater Chemistry	SCC	3/6 to 5/5/76	18
Basic Wastewater and Math	SCC	9/25 to 12/18/76	12
Total			30
Wastewater Chemistry	SCC	2/5 to 5/14/77	15
Basic Wastewater and Math	SCC	9/24 to 12/17/77	18
Total			33
Total Attendants, 1974-77			330

dependent on the availability of instructors.

Community College Courses--The State Training Coordinator works with the vocational-technical directors at community colleges throughout the state to schedule courses as required to arrange for suitable instructors, and to provide necessary instructional materials. An example of the basic process is as follows:

Requests for specific course material or areas of interest are made known to the State Training Coordinator's office. Requests may be received from local community colleges in response to expressed demand, local sections of wastewater professional associations, or individuals working in the field with a need for specific training. The coordinator estimates anticipated enrollment, arranges for an instructor, and coordinates the specific course offering with the local requestor. Generally, courses are held at the nearest community college. The standard course offering is in the format of an eleven-week course meeting for three hours one evening every week. The coordinator, in conjunction with the instructor, is responsible for providing suitable course outline, modular instruction units with manual, or text that will be distributed through the local community college. The community college will then schedule the course and publicize it in quarterly schedules and catalogs. It is anticipated that this type of course will make up the major share of training courses offered and will serve a majority of the continuing education requirements of wastewater operations personnel. Examples of specific courses scheduled through this system are as follows: Applied Hydraulics, Wastewater Treatment, Pumps and Pump Controls, Physics and Mechanics, Fundamentals of Science, and Wastewater Chemistry.

Non-Coordinator-Arranged Activities--A significant number of training activities are available to wastewater operations personnel that are not arranged specifically by the State Training Coordinator's office. In several areas of the state, local professionals (either district engineers or the Department of Social and Health Services or Department of Ecology, local utility engineers, or consulting engineers) have worked individually or together to organize and present operations and maintenance training courses. An example of such activity is provided in the summary of courses offered in the Spokane and Columbia Basin area, organized and presented largely through the efforts of an Operators Training and Advisory Committee at Spokane Community College and Walla Walla Community College. The committee is composed primarily of regulatory agency and utility engineers. A summary of the course offerings, locations, dates, and number of attendants is provided in Table 39.

This example is provided largely to illustrate the magnitude of effort invested by a broad range of professionals in the wastewater field. These programs should be fully integrated into the overall state training plan. The courses tabulated above are included as a part of the overall coordinated state training services. These courses appear in the regular newsletter and can make use of rsource materials provided through the training center. Continuing education unit records are maintained as for any other course organized entirely through the state coordinator.

Roving Operator/Instructor--The State Department of Ecology has employed two roving operators since 1976. The role of the operators has been to provide troubleshooting assistance to wastewater treatment operators. The services have been particularly useful and well received at smaller plants and in remote areas of the state. This service, up to the present, has not been viewed as a part of operator training programs. However, if maintained on a permanent basis, providing such service along with short-term intensive on-site training of local operations personnel, as opposed to stop-gap problem solving, appears to be a viable approach.

Continued use of roving instructors will provide an important supplement to regular course offerings through community colleges and to the special seminars and workshops. These operator trainers travel to wastewater treatment plants throughout the state to provide instruction on correct operation and maintenance procedures, along with their troubleshooting activities, with emphasis on providing highest quality utility operations possible with the existing facilities.

Special Seminars and Workshops--Special one-day to five-day seminars and workshops are scheduled and coordinated by the State Training Coordinator throughout the state each year. Examples of such courses are as follows: Two-day Wastewater Treatment Lab Workshops, Millipore Filter Workshops, Four-day Cross-connection Control Workshops, One-day Sewer Maintenance Schools. This training method provides valuable concentrated instructional opportunities and is expected to serve significant numbers of operations personnel requiring detailed training in relatively narrow subject areas.

WASHINGTON, D.C.

Summary

The Department of Environmental Services of the District of Columbia operates the District Training Center which is located at the Water Pollution Control Facility at Blue Plains (see Figure 17). Upon completion, this WPCF will be the largest advanced wastewater treatment facility in the world with an average flow rating of 309 MGD under dry weather conditions. Because of its size, the large number of personnel employed (300) and the lack of other WPCF's in the District, it was decided to locate the training center at Blue Plains where it would be convenient for operators to attend formal classes and realize the benefits of OJT. All of the personnel attending classes are employed at the Blue Plains plant.

The District's training center has received $224,081 in 109(b) funds and has applied for, but not yet received, an additional $250,905. The acquired funds have been used to make modifications in an existing building for training use; to purchase a comprehensive collection of audio-visual self-study equipment and materials, wastewater lab equipment and supplies, mechanical and electrical laboratory equipment; furniture; and for curriculum development.

History of Application for 109(b)

In 1972, an extensive upgrading and expansion program was initiated at the Blue Plains plant. By 1975 the plant managers realized that the existing Career Development Program would be inadequate for training the large number of people that would be required to be hired as new elements as the the treatment system became functional. As a result of initial contacts with the University of the District of Columbia, it was felt that a formal education program tied to an accredited college or university would best suit the training needs of the District. In this way, the trainees would also receive college credit for successful completion of the courses. The Grants Coordinator of the District's Department of Environmental Sciences and plant management personnel made contact with the regional U.S. EPA office to inquire about funds available for operator training. The mayor of the District of Columbia determined that the Department of Environmental Services would be the grant applicant. In October 1976, the Department of Environmental Services submitted a grant application to the U.S. EPA for $149,081, which was approved in February 1977.

Utilization of 109(b) Funds

A cost breakdown showing utilization of the funds allocated thus

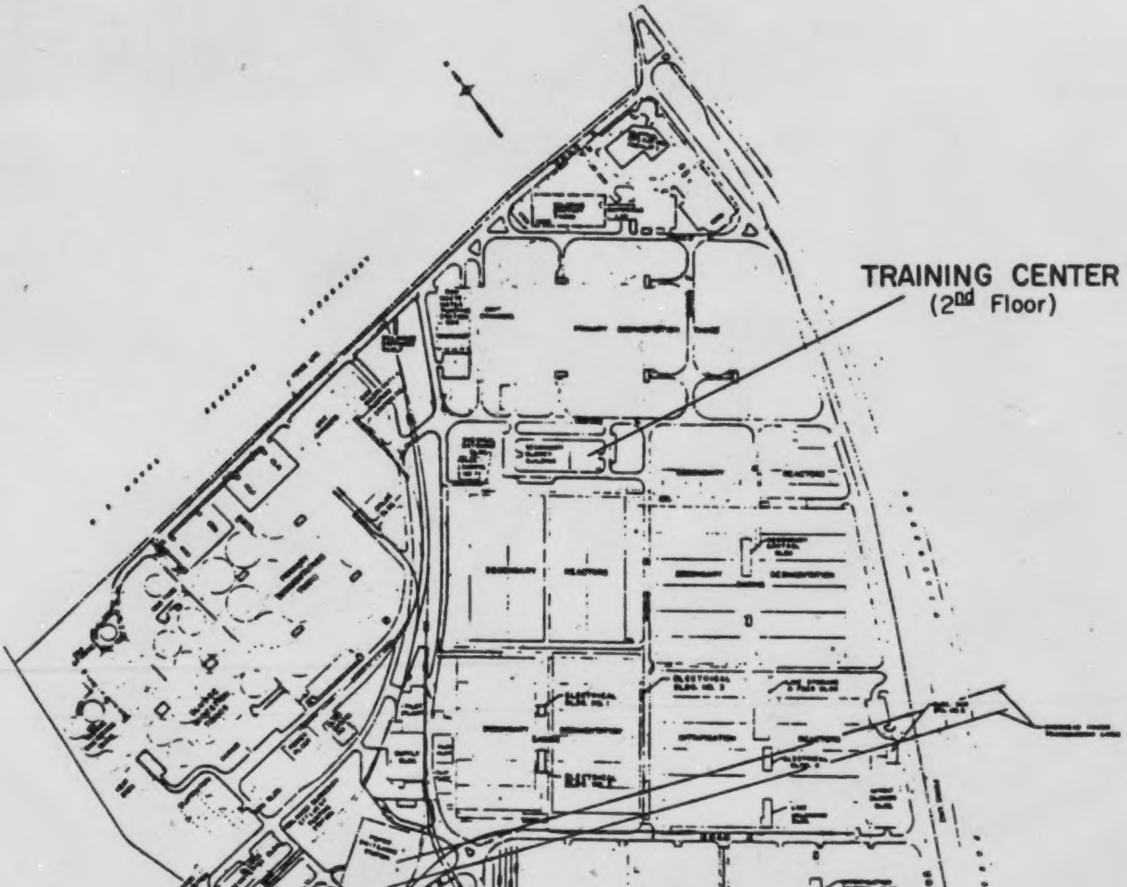
TRAINING CENTER
(2nd Floor)
FILTERS
ROAD
POTOMAC

Figure 17. Water pollution control facility at Blue Plains.

far to the Blue Plains Training Center is shown in Table 40. As may be inferred from the data in Table 40, the Blue Plains Training Center has focused on providing a program strongly supported by audio-visual teaching aids. In fact, the center has a comprehensive collection of video tape equipment and produces its own training tapes on site. Initially, an audio-visual consulting firm was hired to prepare the center's staff for program production. Now, plant personnel function independently in producing tapes that deal with specific elements of the treatment process at the plant. Plant personnel in the different bureaus make appearances on the tapes to explain processes with which they are familiar. The tapes that have been and will be produced deal with topics ranging from plant operations to maintenance functions and plant safety.

The training center is located on the second floor of the secondary blower building at the plant. Figure 18 shows the floor plan for the facility as it was proposed in the grant application. The facility actually has one classroom/wastewater laboratory with an area of 960 square feet, a classroom with study carrels (660 square feet), a mechanical/electrical maintenance lab (500 square feet), a small office, and an AV editing/office space. The eight to ten individual study carrels are equipped with audio-visual training aids for use by the students for learning and review.

The classroom/wastewater lab is equipped with instrumentation, chemicals and supplies, and work benches (along walls), as well as large tables and chairs for approximately 20 people. The mechanical/electrical lab is equipped with mechanical and electrical equipment, testing instruments, and necessary supplies.

District Training Program

The District's training program has been designed to provide classroom instruction, self-paced learning, and on-the-job training. The highest priority in training at the facility has been placed on teaching new personnel at the plant. With the influx of personnel due to the expansion, training was begun at the entry level. Recruits for the plant were drawn from inside and outside the department and were enticed by the opportunity to get college credits while holding down a full-time job. One of the instructors is provided on a full-time basis by the University of the District of Columbia. Part of his responsibility is to insure that the course work at the center meets the academic criteria and standards of the university. College credits are applicable to obtaining an associate degree (or higher, if desired) through the university.

Initially, the curriculum of the center was based on the manuals developed by Clemson and the State of Texas for training waste treatment plant operators. The program has become increasingly tailored to the specific operations of the Blue Plains plant through input from the bureau chiefs and supervisors at the plant. The in-house video taping capability has enhanced the detail and specificity of the training being provided. One of the major reasons for the development of this capability was the lack of availability of quality AV materials at the time. The programs

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PROGRAM COST SUMMARY
BLUE PLAINS TRAINING CENTER

TRAVEL			$ 700
EQUIPMENT			
	A/V	$ 42,070	
	Maintenance Lab	14,030	
	Furniture and Furnishings	13,505	
	Books	13,606	
	Contingency	4,160	87,371
SUPPLIES			
	Chemicals	800	
	Office and Classroom Supplies	2,500	3,300
CONSTRUCTION			
	Renovations	5,000	
	Contingency	500	5,500
TRAINING AIDS			
	Maintenance		10,125
SPECIALIZED TRAINING COURSES			
	Maintenance	112,600	
	Management	3,500	
	Advanced Waste Treatment	5,000	121,100
		TOTAL	$248,096

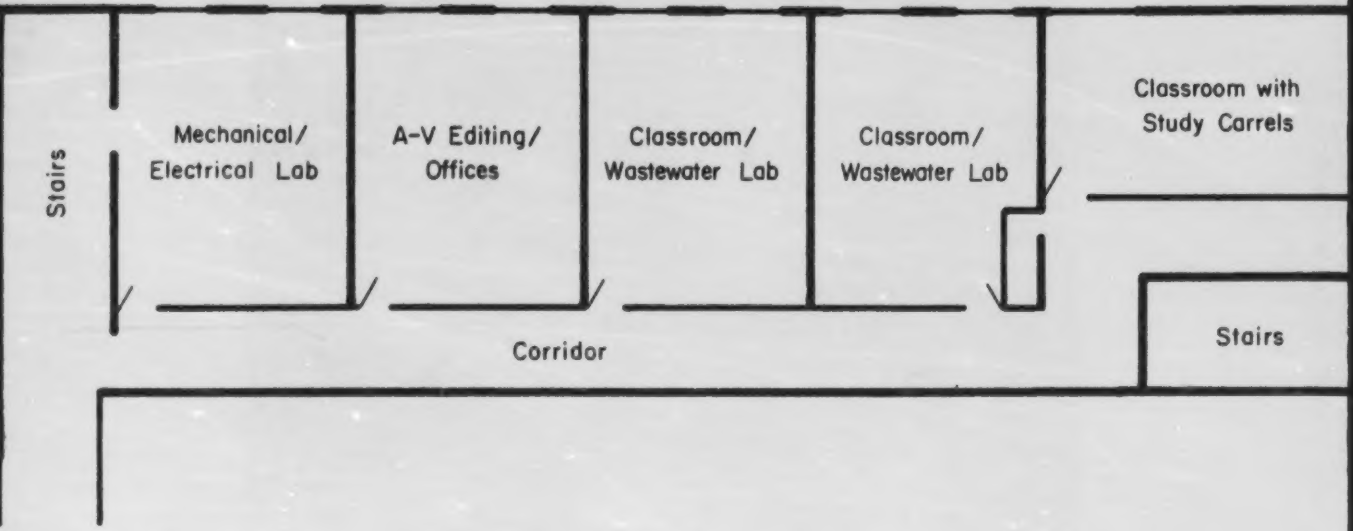
Stairs
Mechanical/ Electrical Lab
A-V Editing/ Offices
Classroom/ Wastewater Lab
Classroom/ Wastewater Lab
Classroom with Study Carrels
Corridor
Stairs

Figure 18. Training center at Blue Plains facility - Washington, D.C.

developed thus far at the center have been well received and are available for distribution on request.

Course work at the center is presented in a semester format with two semesters per year lasting 15 weeks each. Students are expected to attend classes eight hours per week and to perform their job 32 hours per week. Operators are paid for 40 hours, but do not receive "dirty" pay for the hours they are in class. Operators are trained for at least the first two years of employment at the plant. If a student fails a course, he/she is allowed one more opportunity to successfully complete it; otherwise, he/she is dropped from the program. Thus far, no one has been forced to leave, although there have been several dropouts. Operators are evaluated with respect to both their class work and their job performance on a quarterly basis by their superiors. The academic performance of the student trainees is measured through the usual evaluation tools - exams, quizzes, oral responses, homework, and other performance criteria.

Besides the two full-time instructors (one for chemistry/math and the other for mechanical/electrical maintenance and math), professional staff members at the plant are required/requested to teach topics in their area of expertise. These classes may range from explanations of the processes involved to repair or maintenance of specific items of equipment.

The training program has been divided into two sections, one for operations and the other for maintenance. The operations part of the program is based on the Clemson Manual, the Texas Manual, and other appropriate materials. Math courses (up to the intruduction to algebra) are also a part of the program. The wastewater operators program covers the material in the Clemson Manual, a basic course in chemistry and a basic course in microbiology.

The maintenance portion of the program is further divided into mechanica and electrical sections. The same general math is required as well as a technical math course. The mechanical maintenance program covers elementary mechanics including the concept of work, levers, pulleys, gears, etc.; and pneumatics and hydraulics (components and control systems). The electrical maintenance program covers basic electricity including DC and AC circuits, motors and generators, polyphase circuits, electrical control systems, and electrical instrumentation.

Students in both sections of the training program receive classroom and laboratory training and hands-on working experience in the various elements of the topic they are studying. The OJT portions of the training occur through the assignment of the trainees to a regular operating crew or maintenance shop. Shifting the operations students from one function in the plant to another during their training familiarizes them with the entire plant and enhances their knowledge of the overall operation of the facility. Maintenance personnel are permanently assigned to either the electrical shop or the mechanical shop, depending on their intended function.

The Blue Plains plant offers a diversified training experience. It is a large plant both physically (150 acres) and with respect to its capacity

(309 MGD). The completed facility will include the following process steps:

1. Screening
2. Pumping
3. Grit removal
4. Secondary treatment
5. Chemical addition
6. Biological nitrification
7. Multimedia filtration and disinfection
8. Sludge processing

Given the size and complexity of the plant, it provides an interesting and comprehensive training ground for plant operators.

Review materials for self-study are available to the students on demand. Video tapes, slides with accompanying cassettes, and films are provided for this purpose. Tutoring is also available for trainees experiencing problems with any topic being taught. At the end of each semester, the students are given an opportunity to critique each course.

The students at the center who are employed at Blue Plains are not charged for the training that they receive. Thus far, only employees at the plant have received training. In 1977, 39 operators received training, 108 received training in 1978, and 100 persons received training in 1979. Should personnel from outside the plant desire training, they would probably be charged a nominal fee for books and materials and instructors' time. There has been little interest expressed by treatment plant operators from Virginia and Maryland to attend courses at the center.

Information on the annual operating budget for this training center was not available. The District's Department of Environmental Services supplies the operating funds.

CHAPTER VII

SUMMARY OF 109(b) WORKSHOP ACTIVITIES

INTRODUCTION

As part of the grant activities, SwRI, with the assistance of NETA, conducted a two-and-one/half day workshop entitled "109(b) Guidance Development Workshop" on February 26, 27, and 28, 1980 at NTOTC headquarters in Cincinnati, Ohio. Table 41 shows a list of the participants and their affiliation, while Table 42 shows the planned agenda for the meeting. The activities of the group are summarized in the following section.

DISCUSSION OF 109(b) APPLICATION PROCESS

The first portion of the 109(b) Workshop was devoted to establishing the steps which should be taken during the 109(b) grant application process. Table 43 displays the outline which the group developed and expanded with discussion. Chapter III of this document is the modified result of the discussions of the Workshop groups. This summary has been reviewed by each of the participants and modified by SwRI as suggested.

109(b) WORKSHOP SUMMARY

The first day of the 109(b) Workshop was spent on the development of an outline of processes which should be accomplished to enable the effective utilization of 109(b) funds at a given statewide training facility. To establish consistency, the Workshop group defined a 109(b) grant as "a Federal grant to assist the implementation and/or upgrading of a statewide wastewater operator training program." Discussion of the uses to which 109(b) should be eligible included all the possibilities in the existing legislation. In addition, the group agreed that 109(b) funds should be made available to conduct needs surveys in those states which do not have funds which can be committed for such purposes. The group stated that 109(b) funds should be available in the planning process provided a state can justify the request for funds.

Table 43 shows the outline of the processes which should result in an ongoing, viable statewide training facility. The following paragraphs deal with each of the topics presented in the outline. The consensus of the group is reported in each discussion.

TABLE 41. PARTICIPANTS IN 109(b) GUIDANCE DEVELOPMENT WORKSHOP

ARKANSAS	Dr. Clyde Hamer
FLORIDA	Mr. Billy Blair
ILLINOIS	Dr. James Bryant
MISSOURI	Dr. Ronald Layton
MAINE	Mr. Kirk Laflin
NEW JERSEY	Dr. John Cirello
OKLAHOMA	Dr. Karl Brandes
UTAH	Mr. Steve Moehlmann
VIRGINIA	Mr. John (Jack) Vanderland
SOUTHWEST RESEARCH INSTITUTE	Mr. Dirk A. Dahlman Mr. Michael P. Miklas, Jr.
NATIONAL ENVIRONMENTAL TRAINING ASSOCIATION	Mr. George A. Kinias
NATIONAL TRAINING AND OPERATIONAL TECHNOLOGY CENTER (U.S. EPA)	Mr. Tom Schwing

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TABLE 42. 109(b) GUIDANCE DEVELOPMENT WORKSHOP

MONDAY		TUESDAY	WEDNESDAY	THURSDAY
	8:30 a.m.	WELCOME GOALS OF WORKSHOP REPORT ON EXISTING 109(b) FACILITIES -All Participants Assembled -	PRIORITIZATION OF OPTIONS . Advantages . Disadvantages . Importance FORMULATION OF MODELS OF STATEWIDE TRAINING FACILITIES AND PROGRAMS	DEVELOPMENT OF MEANS OF EVALUATING A STATEWIDE TRAINING PROGRAM
		PLANNING A 109(b) FACILITY GRANT APPLICATION . State-EPA relations . Need Surveys . Development of Understanding of Information Requirements to Aid Grantee -Groups of 4 to 5 Participants Each-	↓ - All Participants Assembled -	↓
	12:00	LUNCH	LUNCH	WORKSHOP ENDS
Participants arrive in Cincinnati	1:00 p.m.	DETERMINATION OF OPTIONS FOR PHYSICAL FACILITY, DELIVERY, AND TRAINING PROGRAMS	↓ Continue MODEL DEVELOPMENT -Including- CENTRALIZED INSTRUCTION DISSEMINATED INSTRUCTION MOBILE VAN FACILITIES USE OF WASTEWATER TREATMENT PLANTS Onsite Offsite	Participants Return Home
7:30 p.m. - Get Acquainted Session in SwRI Hotel Room -Same on Tues. night at 8:30 p.m. -Wed. night - FREE	5:00 p.m.	-Groups of 4-5-	- All Participants -	

TABLE 43. 109(b) APPLICATION AND ACQUISITION PROCESS

- I. Learn that 109(b) exists
- II. Learn what 109(b) is
- III. Determine how to receive a 109(b) grant
- IV. Perform pre-application activities
  - A. Identify or establish coordination mechanism
  - B. Identify training needs
    - 1. Number needing training
    - 2. Number by training levels
    - 3. Where are the needs (geographic)
  - C. Identify existing training program
  - D. Identify weaknesses in existing training programs and resources
  - E. Establish training program goals designed to alleviate weaknesses
  - F. Determine if 109(b) fits into the state program
  - G. Identify potential 109(b) applicants
  - H. Evaluate potential 109(b) applicants
- V. Selection of 109(b) applicant
  - A. Establish selection criteria
    - 1. Political acceptability
    - 2. Location
    - 3. Human resources
    - 4. Program operations funding capability
    - 5. Commitment
    - 6. Prior involvement in state training
    - 7. Existing facilities
    - 8. Other
  - B. Select an applicant
- VI. Identify 109(b) program role in statewide training program
  - A. Identify training needs
    - 1. Identify existing and planned facilities
      - a. Types
      - b. Sizes
      - c. Location
    - 2. Identify existing and projected work force
      - a. Numbers
      - b. Skills/Knowledge
      - c. Location
      - d. Promotion and turnover (rate and numbers)
    - 3. Identify training related operational problems
    - 4. Identify other generators of training demand
      - a. Certification
      - b. Continuing education requirements
  - B. Define training program objectives
    - 1. Identify curricula to be used by skill level
    - 2. Identify training experiences to develop needed skills
    - 3. Prioritize objectives
  - C. Identify existing programs
  - D. Identify weaknesses
  - E. Identify methodology to evaluate training program
- VII. Plan 109(b) Program
  - A. Identify needs to be satisfied with 109(b) funding
  - B. Define learning experiences to meet program objectives
  - C. Identify resources to provide needed learning experiences
  - D. Evaluate and select options for using 109(b) funds
- VIII. Complete application
- IX. Submit application to state for review and approval
- X. Submit state approved application to U.S. EPA
- XI. EPA approval
- XII. Implement 109(b) program as described in approved application
- XIII. Evaluate implemented program
- XIV. Respond to evaluation results and continue implementation

I. LEARN THAT 109(b) EXISTS

This step is up to the prospective applicant. Originally, the availability of 109(b) funds was advertised in the Federal Register and was detailed in the enabling Federal legislation. In the past few years, however, the knowledge of the availability of 109(b) funds has been transmitted orally within the training community; from the EPA regional offices to prospective applicants within the states; from the EPA national offices to the regions, and to prospective applicants within the states; and in some cases via consultants and other interested parties.

II. LEARN WHAT 109(b) IS

The learning experience for each of the assembled participants relative to 109(b) has been difficult. Unanimously, the group contends that there is not enough written information available for the self education of prospective applicants. Many of those who have already applied for 109(b) funds did not see the EPA disseminated Guidance documents, and had to rely on an interpretation of the 109(b) program from ill-informed regional personnel. Some bypassed regional personnel and went directly to the National office for their program information and insight. All agreed that a cohesive package which fully explained the 109(b) process should be made available to any interested party.

III. DETERMINE HOW TO RECEIVE A 109(b) GRANT

The participants noted that only piecemeal information was available to them throughout their 109(b) application activities. The consensus was that a complete package which contains 109(b) legislative history, precise applicant requirements (such as ten year state commitment, governor's approval, operating budget, and needs survey), and a list of the activities which have to be accomplished during the 109(b) process should be provided routinely by the EPA to prospective applicants. In addition, there should be a universal interpretation of 109(b) legislation such that each region would evaluate and fund 109(b) programs in a similar manner. As it stands now, some regions are much more demanding than others, and what is allowed "within the regional interpretation" of existing 109(b) Guidance in some regions is absolutely disallowed in others. In the minds of the existing and prospective applicants, severe inequities in requirements and interpretation abound between regions. The group recommended that the EPA thoroughly define the 109(b) program, and that regional differences in interpretation, grant requirements, and review procedures be reduced or eliminated.

IV. PERFORM PRE-APPLICATION ACTIVITIES

Probably the strongest consensus of the 2-1/2 day Workshop was developed relative to pre-application activities, in particular the desirability of the formation of a coordinating mechanism with a given state. The designation and formation of a coordinating mechanism, be it a Joint Training Coordinating Committee, Governor's Committee, informal group, or whatever, needs to include representatives of each of the affected "interest groups" in the state. The group should have members with state

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affiliation, with the statewide wastewater operator certification authority and representatives of occupational and adult education agencies included; the coordinating group should have members from the training community within the state including administrators/educators/instructors and members of professional associations; it should have members from the operators who will be participants in the statewide training programs offered by the 109(b) center. This mix of members should be considered the minimal mix to insure that necessary cooperation between both complementary and competing entities can be developed as early in the program as is possible.

Through the coordinating mechanism, the state should identify its training needs in a preliminary fashion. The coordinating group should, within their collective knowledge, know the approximate number needing training, the various levels which need training, and the geographic locations from whence training should be disseminated.

The members of the coordinating group should be able to develop a description of the existing training program(s) and from their collective activities to identify weaknesses in the program, including the relative quality of delivery mechanisms and physical resources. Consequently, the group should be able to devise methods to alleviate weaknesses in the program, or to strengthen the overall training program activities. With a series of program-strengthening actions in mind, the team should then be able to ascertain whether 109(b) funds could be used to totally or partially fulfil the needs of the statewide training activities in the particular state. In all cases, the findings of the group should be well documented.

The preceding activities should be accomplished with a minimum of physical and temporal effort by the assembled participants as an assessment step in determining if their state should seek 109(b) funds. If, indeed, the group finds that 109(b) funds would "fit into" the statewide training program, then the group should identify and evaluate potential 109(b) applicants within the state. These preliminary assessments would not preclude an entity for consideration, but would be utilized to assure that all those potentially interested entities are considered. Because of the diverse background of the coordinating group, a thorough evaluation of potential statewide training center candidates should result from the group's deliberations.

V. SELECTION OF 109(b) APPLICANT

The coordinating group should be granted the responsibility for recommending the 109(b) applicant from the state. In most cases, the entities to be considered for implementing a statewide training program and for utilization of a 109(b) grant will be represented on the coordinating group prior to selection. Of course, those states which have an ongoing statewide training program will probably choose their existing program as the 109(b) grantee, but those states without an ongoing training program will be looking for a candidate which can establish and maintain a total statewide training program as well as the utilizaiton of a 109(b) grant.

In the selection process, the following criteria must be considered in the final evaluation of an entity to become the statewide training center: (1) political acceptability, (2) location, (3) human resources, (4) program operations funding capability, (5) commitment, (6) prior involvement in statewide training, (7) existing facilities, and (8) others.

The listed criteria are not arranged in any order of importance; rather, each must be considered in the statewide context. In some states, one or more of the criteria may outrank others in importance, but each should be considered and potential problems identified before the final selection of an applicant occurs. The following paragraphs will give a brief discussion of each of the criteria, identifying the reasons why each is important.

- Political acceptability - Political acceptability is a catch-all term which refers to the formal organization, as well as the informal social relationships which develop in a state both in public and private entities and organizations. In order to be a 109(b) recipient, a facility must be designated a statewide training center by the governor of the particular state; thus, a significant political ally (i.e., the governor) must be present. The designated center, if it is to be effective, must be able to reach out and serve the training needs of the state; to do this, cooperation between both competitive and complementary state, local, and private interest groups must be fostered. In many cases, the academic community must be satisfied that the appointed 109(b) recipient exemplifies the goals and recognized needs of the educational community. Lobbying groups such as operators' associations, university regents and others must be amenable to the designated recipient if the cooperation necessary to provide a comprehensive training program is to be realized. The coordinating group, by its early inception and inclusion in the 109(b) process, should act as a bolstering force within the social-political milieu in a given state. The general consensus of the Workshop participants is that the more cooperation that can be developed between interested parties early in the planning process and continuing throughout, the better the final program will be and the easier its eventual attainment.

- Location - The physical location of a statewide training facility can be a critical factor in the eventual success of a statewide training program. Some states have located their training centers away from their population centers and, in the opinion of many, have minimized attendance at their facility by doing so. This does not mean that all statewide training centers should be near the population center for a given state, but rather the coordinating group should investigate the needs of the potential audience not only on educational terms but also on transportational/access, serviceability terms. The type of center can and should be influenced by the potential location of a new facility, or the existing location of a center to be improved. For example, if an existing facility is a satellite operation, then the justification for building a pilot wastewater treatment plant with 109(b) funds at one location is lessened. Similarly, if a new center is to offer wastewater operator training classes for an entire state, an attempt should be made to locate the facility favorably with regard to total miles traveled to receive training and to the proximity of the majority of the trainees.

- Human resources - This criteria refers to all personnel who would be involved in implementing a statewide training program. The staff to be involved directly at the proposed facility would be most important, but support staff such as administrators, audio-visual specialists, librarians, specialized instructors, and others should be a part of the evaluation. Adequate staffing is an important element in the success of a newly organized statewide training center. Similarly, the maintenance of a qualified staff is difficult in the seller's market which now prevails in the wastewater operator training business.

- Program operation funding capability - Each facility/organization to be considered as a statewide training center should be able to demonstrate fiscal support for at least ten years beyond the consideration date. To be effective, a center must be able to schedule classes, hire instructors, maintain its facility, and upgrade its equipment through time. Those facilities associated with the statewide educational system will generally be provided with some operating funds by the state, usually through percentage return of tuition fees collected for the various courses. A continuing statewide support is a critical element in the consideration of a site for selection. It is not recommended that an entity be selected on the basis of probable support, but rather that a rigorous fiscal assessment be accomplished before selection occurs. The fiscal assessment should demonstrate the ability of the candidate to provide the full gamut of services associated with a statewide training function. Similarly, the sources of all operating funds should be identified such that the reviewer does not have to make assumptions of fiscal responsibility within the program.

- Commitment - A written commitment from a responsible entity to support the statewide training center for a period of not less than ten (10) years from the date of inception is required in order to receive a 109(b) grant. The commitment may be directly from the state, through the governor's office or other state agency; or may take the form of support of a program through a state university, college, or vo-tech school; or from a county, municipality, or private organization. In any case, the candidate must be designated by the governor as the statewide training center in order to make it eligible for 109(b) grant funds. Any commitment should include a statement of continuing fiscal solvency with the strongest guarantee possible in the given situation.

- Prior involvement in state training - It is advisable that the candidate be experienced in wastewater operator training, and that the administrators have prior experience working with state representatives. Though prior training involvement cannot guarantee a successful program, it does indicate a genuine interest in the issue by the applicant. The evaluation of the attributes of an applicant can be accomplished more easily if prior knowledge is a part of the collective information available to the coordinating group members. The ability of an applicant to comprehend the complexity and difficulty in mounting and/or maintaining a statewide training center should be heightened if prior training by the applicant has been done. The existence of ties to the operator community, the training community, and the state hierarchy before selection as a statewide training center and/or a 109(b) grant applicant should make the eventual realization of program objectives an easier task than that of a new organization which necessitates a total learning experience. It is probable that 109(b) funds will be more effective when used to strengthen an existing program rather than starting a totally new program.

- Existing facilities - The facilities already "on hand" at the site of the applicant should be a positive factor in the evaluation of the applicant. Any buildings, classrooms, laboratories, mobile units, or other hardware will give the applicant a better base on which to build the proposed statewide training center. The type of available equipment and its existing utilization should provide the coordinating group with a valuable insight into the viability of the applicant, and the nature of a future statewide training facility which would be operated by the selectee. In addition, the perusal of existing facilities by the coordinating group should impress upon the group the type of equipment needed to maintain training programs and the administrative structure to operate them.

- Other - This category is intended to allow the coordinating group to establish other evaluation criteria which, during the course of their deliberations, become meaningful. Certainly, each coordinating mechanism operating within their own context and understanding will develop evaluation methodologies which are unique to their situation.

Utilizing the evaluation methodology which has been agreed upon, the coordinating group will select one of the applicants to establish a statewide training center. The selectee is then recommended to the governor for statewide designation in order to qualify for 109(b) grant funding. Because statewide designation is prerequisite to 109(b) funding, it follows that the 109(b) applicant is always the statewide training facility or a part of it. In those states which already have a statewide training center, the selection of a 109(b) grant applicant is simplified; generally, the existing statewide training center has to be the 109(b) designated applicant.

VI. IDENTIFY 109(b) PROGRAM ROLE IN STATEWIDE TRAINING PROGRAM

In order to define the role of 109(b) funding in a statewide training program, the state training facility must first have a thorough understanding of the statewide needs, training program objectives, existing training programs, weaknesses in their activities, and a means of evaluating their own program in an orderly, meaningful way. Each of the elements which relate to the identification of the 109(b) program role in statewide training activities is discussed below as the Workshop group envisioned them.

Identify Training Needs

The consensus is that the needs assessment which is accomplished at this stage of 109(b) planning should be formal and intensive. The needs survey should be comprehensive, including descriptions of existing facilities and programs as well as documenting the existing work force and projecting future work force demands. It is crucial that the examining agency identify problems within the existing system, pinpointing, if possible, specific changes which would benefit an ongoing program. As part of the entire needs evaluation process, the reviewers must consider the effects of certification and continuing education requirements on existing or planned statewide training efforts.

In addition to identifying training needs, the coordination group should have a thorough understanding of the objectives of the existing or planned statewide training program and should always state those goals or objectives in writing. The existing training programs should be documented and their response to the identified objectives of the statewide effort should be evaluated. Any weakness or problem areas within the existing or planned program should be identified and potential remedial efforts postulated. It is advisable that the curricula used or to be used at various skill levels be identified and discussed; that training efforts which can provide the needed skills be identified, and that the coordination committee attempt to redefine and prioritize program objectives to meet the perceived needs.

One of the major elements of any statewide training program should be the ability of the program to thoroughly, and systematically, evaluate itself. The coordination committee should strive to develop a workable evaluation methodology which can be used to continually provide input on program effectiveness. The methodology should be designed to accommodate the growth of the statewide training program and the methodology should be capable of tracking a program through many years. The evaluation methodology generated by the group should be inclusive yet flexible enough to deal with a multifaceted program. The Workshop members maintain that a good evaluation methodology is indicative of a thorough understanding of the many attributes of a statewide training center, and that a well-planned, easily augmented evaluation effort is an excellent indication of the probable high quality of the future program in a given state.

VII. PLAN 109(b) PROGRAM

During the course of establishing or scrutinizing a statewide training center or program, the coordination group should become totally familiar with the program objectives and means of attaining those objectives. Utilizing this total familiarity, the coordinating committee should be able to identify eligible elements of the planned or existing program which could benefit from the use of 109(b) funds. In order to fully comprehend the needs, the coordinating group must be able to delineate the learning experiences which can satisfy the statewide program objectives. By fully comprehending the learning experiences, the gamut of resources which can satisfy the perceived needs can and should be identified. It is probable that more than one activity or action will be identified which can alleviate problems or improve an overall program. The coordinating group or its agent must be prepared (and must be diverse enough) to evaluate the available options and eventually develop a complete grant application for submittal to the U.S. EPA. Based on available information, a request for 109(b) grant funds should propose to utilize the needed dollars in a cohesive, structured way which can be proven to be an effective means of establishing or enhancing the training activities in a statewide program.

VIII. COMPLETE APPLICATION through
XIV. RESPOND TO EVALUATION RESULTS AND CONTINUE IMPLEMENTATION

These last seven items in the 109(b) Process Outline as developed by the Workshop participants are important, but in many regards are more "process" oriented than the previous items. The completion of an application, submittal, EPA review and approval, and program implementation, when funded, are straight-forward albeit complex activities. Relative to the requirements for a 1,3,5-year projection in the EPA 109(b) grant application, the Workshop group unanimously agreed that a progressive development plan spanning from 3-5 years from inception would be more meaningful both to the EPA and the grantee. The main impetus in any projection should be the identification of the work force and the anticipated needs of that work force. If possible, the Workshop group would like to see the future projection requirements pared to no more than three years, as the group contends that projections beyond that interval are meaningless and unsubstantiable.

The last two items in the outline are new, and, in the judgment of the Workshop participants, extremely important considerations, both for the grantees and the EPA grantors. The evaluation of the implemented program should be an ongoing occurrence at any statewide training center. The evaluation methodology established by the coordinating group should be the initial means of determining the program effectiveness, but additional evaluation techniques will undoubtedly become apparent through time. The Workshop group agreed that a well-planned and implemented evaluation methodology would go hand-in-hand with a well-organized and effective statewide training program/center.

FACILITY DESCRIPTION OF WORKSHOP ATTENDEES

Early on the second day of the Workshop, each participant detailed the important aspects of his respective facility and offered his insight into the activities associated with his project from its start to the present. The following paragraphs present the discussion of each participant.

New Jersey - Dr. John Cirello

The 109(b) facility to be set up at Rutgers University-Cook College is a centralized facility utilizing an existing program with Rutgers providing the advanced/upgrade training. Basic operator training courses are taught at Vo-Tech Schools, and at Junior Colleges or Community Colleges which provide a second tier level of education. New Jersey had a fully functioning Advisory Council which investigated the needs in operator training with the state. The Council concluded that laboratory training at the basic level was needed; that specialized training in the use of sophisticated instrumentation and the interpretation of results was needed; and that advanced training on various topics such as sludge composting and land application, nitrogen and phosphorous removal, and incinceration and sludge handling was also necessary.

The Advisory Council noted that Rutgers was in a centralized location relative to the rest of the state; no point in the state was more than two hours away by car. For this reason, the mobile unit concept was not considered further in New Jersey. The Advisory Council representing the State of New Jersey advises the JC and VT school on their curriculum and classroom presentations. Since the Advisory Council will also oversee the activities of the proposed station or Training Facility at Rutgers, there is a built-in cooperation in the New Jersey operator-training system.

The program at Rutgers will develop computer assisted training techniques such that the other state training institutions can "tie in" for computer assistance. The computer system should provide simulations of process control and other "in-plant" activities including CRT graphics displays and "tie ins" to other computers. In addition, the Advisory Council decided that the last two or three class meetings at a given wastewater operator training course will be presented at the Rutgers Center. It is hoped that the exposure to the Center will whet the appetite of the attendees to come to the Center for specialized training.

The New Jersey Center will install a septic tank-leach field for demonstration purposes. Sewage will be "on tap" within the facility. Discharge requirements are not a worry since the discharge from the Center will go to a sewer for eventual treatment at a major STP. The 109(b) funds in New Jersey will be utilized totally for facilities and equipment, with a computer being one of the critical components to be purchased. Rutgers has not obtained much "free" equipment from manufacturers and others since there always seems to be "too many strings attached".

The Rutgers facility has no formal state commitment to support the Training Center. Indirectly, the state has agreed to operate the Center by supporting the facility through the state-run Rutgers University system.

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Illinois - Dr. James O. Bryant

The Illinois statewide training center is not a 109(b) center, but its existence is partially the result of 109(b) funding availability. In 1967, the Illinois State Legislature passed legislation that directed Southern Illinois University to establish a Wastewater Operator Training Institute. SIU-Edwardsville incorporated two classrooms into the wastewater treatment plant designed to serve the University. SIU-Edwardsville began offering operator training programs in 1968. Due to the 109(b) legislation of 1972, interest in utilizing the funds was generated in Illinois; in 1973, Illinois EPA opted not to apply for 109(b) funds, but rather to build a totally state-funded training center. The legislation to build the Illinois center was passed by the Legislature in 1975, and the center facilities were occupied in 1976.

The University system in the early 1970's had legitimate functions in the vocational training, certificate, and two-year degree type of programs. However, by 1976 the Illinois Board of Higher Education had revised policies such that Unviersities would no longer offer vocational training, certificate, or two-year programs, and that such programs would be the responsibility of the public community colleges. The result was that Ilinois then had a two million dollar, 28,000 sq. ft. facility with 12,000 feet of classrooms and other laboratories which was intended to provide entry level and advanced certificate occupational training programs which have proven difficult to support through the higher education/budgetary process.

In 1980 there are about 30 community colleges offering wastewater operator training courses in Illinois. The Edwardsville facility is providing coordination, materials, and functional support to the colleges.

The Edwardsville facility is located 280 miles from Chicago, a 6-7 hour drive from the major population center in the state. Thus, the Center conducts about 75 percent of its program in an outreach mode, with many training activities scheduled in the Chicago area.

The Edwardsville Center is able to recover about 25 percent of its cost of operation on training delivery. The major portion of operating costs are supported through grant and contract activities supplemented by a small continuing allocation from University resources. The priorities at the Center are as follows: (1) provide personnel resources to community college programs on an "as needed" basis; (2) provide outreach direct training activities; (3) provide on-site continuing education programs at the Center; and (4) provide training materials and curriculum support to community colleges. The Center administers several self-study correspondence programs. The Center provides instructional services to approximately 1200 operators each year with about 75 percent of operator contacts being through outreach programs conducted at sites throughout the state.

New England Regional Wastewater Institute - Mr. Kirk Laflin

Mobile Training Unit. In New England it was decided in 1971 that the best way to bring training to the outlying portions of the region was through the utilization of a mobile van. The van is scheduled on a six-month-in-advance basis, and there is more demand for the unit than available dates. In New England a mobile van program has never been cancelled due to inclement weather. The van, which operates 35 weeks per year, has a budget of $18,000, which includes gasoline, lubricants, tolls, and room and board for the instructors. Per diem is not paid; rather, actual expenses are reimbursed. The instructors sleep in motels, not in the van. The 23-foot Winnebago van was originally purchased for $18,000. Interestingly, a partially furnished van cost less than a totally stripped van, and was delivered quicker than a stripped-down model.

The mobile van operation in New England is easier to live with than a satellite facility operation since explicit interstate cooperation is hard to establish. A limitation of the mobile van is the complexity of scheduling to reach the maximum participants, and the equity of presentation availability to likely attendees. The NERWI mobile training unit is but one of many methods which NERWI utilizes to train wastewater treatment operators in New England. (Comment relative to Mobile Training Unit.)

Arkansas - Dr. Clyde Hamer

Mobile Training Unit. One individual operates the Arkansas Mobile Training Unit (MTU) and he is "in the field" 11 months out of the year. The unit visits about 20 sites annually, with instruction provided from 1-6 p.m. each afternoon. The attendees like to have the training brought to them. Certain problems relative to overtime, shifts, and union matters are alleviated by scheduling the mobile unit in an area.

Arkansas does not teach entry-level courses from its mobile van, but rather provides short courses, or specialized training at an upgrade level for the operators.

Virginia - Mr. Jack Vanderland

Virginia opted for a statewide operation due to the extreme commuter distances of up to 700 miles if a center were placed on the extremities of the state. Even with a geographically centralized location, commutes of 300 miles or more would be "normal." The state opted to set up a centralized administration for a satellite operation which utilized the existing junior and community colleges within the state to provide the necessary services. The Virginia center provides both basic and upgrade training for operators through courses of concentrated instruction whose costs are underwritten by the state at the community college level. All courses in the Virginia program can be applied to a certificate. Laboratory experiences

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are provided at each of the satellite units, with necessary specialized equipment and instrumentation furnished by the Central Administrative/Teaching facility on the campus of J. Sargent Reynolds Community College (JSRCC). Involved, more advanced courses are taught only at the JSRCC campus.

Classes are presented during the daytime hours and, in general, the employers underwrite the cost of the operators' attendance. Evening classes were tried, but the operator response was poor.

The Virginia Center operates a small mobile van in order to present classes at "single man operations." The van travels to a facility and arranges for a few mornings of three hours' duration participation by the operator(s). The State Water Control Board pays for the van, travel, operating cost, and the instructor's salary. No money is received from a JC for classes which are delivered by the Virginia Center personnel; rather, all tuition or recovered cost reverts to the "host" college for utilization.

Since the satellite units have delivery systems "in place," the 109(b) funds were used for instruments and supplies, primarily. The overall cost of providing the statewide training service can not be readily determined due to the complexity of funding sources within Virginia.

The Virginia Center is upgrading curriculum on a continuing basis. Innovative courses which are under development include a training package for a designated operator to deliver at his own facility, industrial waste training modules, and multilevel activated sludge courses.

The Virginia Center is tied closely to the state regulatory agency and this has proven advantageous. Due to good working relations with the regulatory agency, the Virginia Center is able to access valuable facility and operator data on a routine basis. The information gleaned from the files enhances the planning and overall program which the Virginia Center provides. There is a possibility that the close connections of Virginia Center personnel with the regulatory agency might be viewed as a threat by some owners and operators. To date, operators and owners openly seek Virginia Center advice on their operational problems.

Florida - Mr. Billy Blair

In 1974, the Florida Legislature passed a bill mandating the creation of a Center for Training, Research, and Education for Environmental Occupations. This legislation provided for construction funds, directed the Board of Regents of the State University System to select a university as the site of the facility, and authorized the seeking of Federal, state, and other grant monies to support mandated activities. However, no appropriation of operating funds was included in the legislation.

When collected revenues in Florida fell short of projections, construction of the TREEO Center was delayed. The facility was officially turned over to the State of Florida by the contractor in the first half of 1979.

Through hearings involving universities and associations of persons affected by the creation of such a center, the TREEO Center was assigned to the University of Florida (UF). UF, centrally located geographically, has been a focal point for water and wastewater treatment operator training since the early 1930's.

Although the TREEO Center is centrally located in Florida, commuting times by automobile from the two farther directions is seven (7) hours or more. Therefore, most of the training in Florida that leads directly to wastewater operator certification is offered through community colleges and vocational schools. These offerings range from single courses specifically for meeting certification requirements to associate degree programs.

Efforts of TREEO Center staff members are currently concentrated in two areas. One of these is curriculum development. The second is the traditional area of meeting specific needs in environmental occupations through such short-term learning experiences as workshops, seminars, and conferences. These activities are offered as frequently as the need will support them financially, and they are modified to meet changing needs.

The Annual Water and Pollution Control Short School is held [illegible] the TREEO. Plans also exist to offer a limited number of certification courses through the Center. As needs, circumstances, and finances change, the direction and efforts of the TREEO Center continue to evolve.

Utah - Mr. Steve Moehlmann

Utah is in the process of establishing a centralized facility at Utah Technical College (UTC) at Provo/Orem. State law in Utah is such that only one college in the state could be given a wastewater treatment school in order to avoid wasteful curriculum duplication in the eyes of Utah legislators. In 1977-78, UTC received the permission of all other colleges in the state to set up a wastewater program. The campus at UTC is centralized, though slightly off center within Utah; most of the operators within the state would have no more than a two hour commute to the newly established training center.

The Utah State Board of Education reviewed the options and appointed UTC as the operator training facility. The decision was to build a center without a wastewater treatment plant on site. Conveniently, other sewage treatment facilities of various types were located nearby and UTC plans to make extensive use of them. Initially, no entry level training will be provided at the Utah Environmental Training Center, but expansion is anticipated. Due to the location of the facility on a college campus, it is anticipated that groups other than wastewater trainees will utilize the building during slack periods.

It is difficult in Utah to establish a statewide commitment for operational funds. The state issued a ten year commitment by locating the facility at a public institution, but ongoing funds can be budgeted only on a year-to-year "as available" basis. The internal review of the Utah plan was done by a committee with the following members: (1) consulting engineer who is also an operator/ trainer, (2) three wastewater treatment plant operators, (3) a design engineer, (4) a state representative, and (5) a person knowledgeable in water technology. There was no public hearing in the design phase.

It is apparent that "normal" architectural/engineering firms are not familiar with the design of educational buildings; thus, Utah recommends selecting an educational structure architect, working in cooperation with a sanitary engineering firm, if a wastewater plant is to be located on the site. Operator oriented groups are desirable in the review process, and every effort should be made to review existing pilot facilities elsewhere before planning and constructing a new one in a given state. Educational criteria which will affect the structure and its utilization should be developed in the planning stage. Mr. Moehlmann feels that considerable money is wasted from state to state by designing from scratch, rather than investigating and utilizing plans which succeeded elsewhere. Mr. Moehlmann would, in the planning design process, like to have been able to access information on pilot plant design, mobile vans, satellite operations, etc. in order to have as broad a knowledge base as possible from which to make decisions.

Missouri - Dr. Ronald Layton

The Water and Wastewater Technical School at Neosho, Missouri, must be innovative in order to compete and survive. Unlike other training centers, the WWTS has a state, national, and international mission. The school conducts a one-year program and specialized short courses for various organizations. Of its 1.2 million dollar budget, WWTS recoups about 30 percent from tuition charges, with the remainder being picked up from specialized contract work, research, and other sources.

The State of Missouri guaranteed to support the WWTS at Neosho, but not with operating funds. Interestingly, the state 'competes' with WWTS by presenting the entry level courses and some short courses at varying statewide locations.

Oklahoma - Dr. Karl Brandes

The Oklahoma facility is centrally located at Oscar Rose Junior College in Midwest City, Oklahoma. The State Health Department had historically conducted wastewater operator training in small towns around the state, thus recognizing the need for training in the environs.

Satellite training was investigated, but eventually it was decided to build the centralized facility for the following reasons: (1) courses taught at wastewater plants allow far too many interruptions - many times no formal facilities for training are available, telephones are heard ringing, extraneous plant noises abound, and other workers interrupt class sessions on numerous occasions; (2) rooms are usually too small with inadequate accommodations; and (3) storage space for equipment is usually very limited.

Oklahoma provides off-campus training via a talk-back TV system which feeds the entire state. Scheduling is difficult, however, since many institutions, including universities with graduate course offerings, competes for the prime times and prime legs. There is some consideration being given to unpolished video presentation or cable TV. An agreement has been reached with the Oklahoma State Department of Health that all statewide operator training, including off campus field training, be conducted by Oscar Rose Junior College in the near future.

Mr. George Kinias, NETA

Mr. Kinias pointed out that a strictly audio system can be leased from the phone company and that such setups have been utilized to provide effective training programs in Indiana. If need be, an electronic "chalk board" can be hooked up for some visual interaction, as well. In Indiana, certification review classes were conducted utilizing audio hookups. Six participants fielded questions from operators around the state. Also, Indiana successfully conducted Advisory Committee meetings using the audio system, and suggest it for public participation requirements.

Mr. Kinias suggests that, if possible, an instructor for a video/audio class should not be in front of an audience. Mr. Kinias feels that the instructor should tailor his presentation for and interact with his unseen audience and that this is easier done when the audience remains unseen. Mr. Kinias recommends that any building be constructed with eventual expansion into audio-visual presentations planned. Lines can be built in for future use, and are less expensive to put in during construction than at a later time.

Mr. Kinias suggested the utilization of a "hot line" or toll free "800" number to provide operators information on an "as required" basis. Dr. Layton pointed out that the WWTS at Neosho utilized this idea but quickly discovered that questions were being asked and answers expected for which not enough information was available. The potential of providing answers which did not solve the problem, thus leading to lawsuits, was also recognized.

There is another problem with "hot line" services which involves consulting engineers. The provision of definitive information by a state funded organization could be construed as unfair competition by private entities and might result in lawsuits as well.

Arkansas - Dr. Clyde Hamer

The Southern Arkansas University Technical Branch (SAUTB) at Camden, Arkansas, was selected as the site for the Environmental Training Center of Arkansas. The state had been funding a mobile unit through SAUTB since 1969. The 109(b) funds have been utilized to construct a pilot wastewater treatment plant to be used for training only. Various options have been designed into the facility, including flow control and metering, different piping, and treatment options. A trickling filter or sludge drying bed were not included, as these elements are found nearby. Arkansas is requesting additional 109(b) funding to construct and furnish a wastewater laboratory adjacent to their new facility.

The ETC annually presents several short-term training seminars/workshops which are developed in response to identified need. Many times these sessions are directly related to training, utilizing the pilot wastewater treatment plant. Others are related to water treatment/management or other environmental concerns such as swimming pool and vector control seminars.

Arkansas has solicited and received industry cooperation in placing students of their program into a plant for summer field training. There is a close supervision of the student placement to insure that the SAUTB trainees get a full range of OJT experience during their summer stints. SAUTB personnel visit each site to chat with the employer and student during the student's stint. The selection of an industrial location for OJT is influenced by the objectives which each student is asked to produce relative to his own training program; through this mechanism, student interest and involvement is heightened. In order to better understand industry needs, an evaluation form is provided to the employer for his comments at the end of the OJT.

EVALUATION OF STATEWIDE TRAINING PROGRAMS

The final day of the Workshop was devoted to a discussion of evaluation techniques which are utilized by the Workshop participants. The discussion began with a presentation of a philosophic approach to evaluation by Mr. Billy Blair of the TREEO Center; amplification and clarification of the presentation was accomplished through group interaction.

The discussion of Mr. Blair centered around an "evaluation matrix" (see Table 44) and the elements within it. There are three major considerations which need to be heeded when establishing an evaluation procedure, as follows: (1) context, (2) process, and (3) product. Context refers to the surroundings or environment in which the evaluation activities occur. Process refers to the actions which are undertaken to accomplish the

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TABLE 44. EVALUATION MATRIX

	Formative	Summative
Context:	What is likely to be happening around the program that is likely to affect it? (Have provisions been made to identify these and take necessary actions/ precautions?)	What things happened that affected the program? (Have provisions been made to identify these and take necessary action?)
Process:	Can activities be implemented as specified? (Have provisions been made to adequately monitor and take actions to prevent activity failures and maintain/enhance activity successes?)	Were activities implemented as specified or as modified based upon formative process evaluation data? (Have provisions been made to allow for adequate documentation of process evaluations for summative evaluation and decision making?)
Product:	Can the rate of progress toward meeting program objectives be measured? (Have provisions been made for interim testing, observing, etc. that will allow rate of progress to be determined?)	Can the degree to which program objectives were achieved be measured? (Have provisions been made for adequate testing, observing, record keeping, etc. that will allow determination of the extent to which program objectives have been met?)

Can the program be adequately evaluated? (Have provisions been made for recording, examining, and analyzing the formative and summative evaluation components such that:

If objectives have been achieved, needs can be reassessed? (Have provisions been made to reassess needs?)	If objectives have not been met, program activities, objectives, and context can be re-examined? (Have provisions been made to reassess program activities, objectives, and context?)

-- After Billy Blair

desired evaluation objectives. Product refers to the final output of the processes operating in the context of their surroundings. Mr. Blair further differentiated his matrix into formative and summative components. Formative components are those that are planned, while summatives are the result of overt activities within the purview of a statewide training center.

The Workshop group agreed that the effect and/or eventual success of a statewide training program was dependent on the following:

- Students
- Faculty
- Curriculum
- Facilities.

It should follow, then, that a thorough evaluation of a given program should consider each of the four elements. Dr. Layton noted that one way of achieving notoriety is through peer review and judgment via national accreditation. Dr. Layton noted that the WWTS at Neosho, Missouri, was an accredited water and wastewater training facility by the AWWA and others. Others pointed out that it is normal for institutes of higher learning, of which they are a part, to have their faculty and curriculum accredited, and that this was a desirable occurrence.

The quality of the effluent of a wastewater treatment facility was suggested as a potential means of determining the success of a training program. However, all the participants agreed that it was almost impossible to quantify because of the large number of variables which can affect the operation of a given wastewater treatment plant. At least two regional studies have attempted to link performance to the job training. In the case of a Texas study, correlation between performance and training was good. In the case of a Missouri-WWTS study, positive monetary equivalent returns can be documented.

Placement of graduates was brought up as a "yardstick" for determining the success of a program. But it was agreed that placement, alone, cannot be the only measure of success. When accompanied by a feedback of information from both the employed and the employers, placement becomes a more meaningful tool for judging training program success.

Probably the most critical facet of placement evaluation is whether the employers are satisfied or not. A determination of the reasons for employer satisfaction/dissatisfaction should provide information which allows a stronger training program to be designed and implemented. The quote "performance is the proof of the pudding" seemed to be universally accepted by the Workshop group.

Each of those present was asked to present a short discussion on the methods which their facility utilized to evaluate their students. The following paragraphs present their discussions.

Arkansas

Arkansas defines its program objectives with class syllabus, goals descriptions, a written set of objectives for each unit, and a set of terminal objectives for the program.

The evaluation of the students includes an employment evaluation record, early follow-up, and a 5-year follow-up. Employer satisfaction is queried throughout the student's career. The high placement ratio for SAUTB graduates is thought to be an indication of the success of the Arkansas program.

The SAUTB cannot evaluate mobile unit students very readily. Evaluations are written by the instructor on each student, but since most students are already full time employees, further follow-up is minimal. It can be shown that over 95 percent of the mobile unit students eventually pass their certificaiton tests and this fact is thought to be indicative of a high quality mobile unit program.

Oklahoma

In Oklahoma, on-campus water/wastewater workshops and courses taught by Oscar Rose Junior College generate FTE's.

The judgment of the success of these courses is based on the attendance numbers, FTE's generated, student retention, and performance of students in these courses and workshops. At the end of each workshop, participants fill out evaluation forms pertaining to relevance of course material, performance of instructors, and effectiveness of the method of instruction. The number of students placed in industry and municipal treatment facilities upon graduation with Associate in Applied Science Degrees is also considered to be a measure of the success of water/wastewater courses, although many students are already employed while enrolled at Oscar Rose Junior College. At present, there is only an informal follow-up on performance of former students in their places of employment and on students' satisfaction with their training at Oscar Rose.

Missouri

The WWTS is nationally accredited, a fact which means that the institution has met the stringent standards of the accrediting agency. Short courses are evaluated by the trainees. The WWTS follows up on students, asking their employers for an evaluation. A five year follow-up is attempted. The WWTS contends that placement and retention records are a good indication of the success of their program. The WWTS points proudly to the fact that some of their graduates have received awards from their peers and their employers for exemplary service - a sure indication to WWTS that their program is meeting their overall objectives.

The WWTS also asks its Advisory Council to critique the operation of the school and its curriculum. The Advisory Council is also in a position to evaluate whether the WWTS is meeting the objectives which the school has outlined and consequently, the needs of the state.

Florida

The TREEO Center presents workshops, conferences, and short courses. An evaluation sheet is required to be filled out by each participant. The planning committee for the facility activities reviews the evaluation sheets. The two primary concerns to be satisfied are as follows: (1) Did the presentation meet the need? and (2) Was the agency which sent participants satisfied with the presentation?

Mr. George Kinias, NETA

The state of Indiana utilizes many modes of self-evaluation, including following up on attrition in the training programs and student sensitivity feedback. The Indiana program has attempted to measure its product by surveying the employers, surveying the graduates, and developing an alumni group advisory committee for feedback-program evaluation purposes. Indiana maintains that self-evaluation and subsequent response/improvement is a never-ending process; thus, their program director attempted to follow their students' upward mobility in the system, equating upward mobility with a successful statewide training program.

An important facet of the Indiana evaluation methodology is a conscious attempt to keep in touch with employers who send trainees to the Indiana courses. The Indiana statewide training center staffers contend that a satisfied employer is a good indicator of a successful training program.

Illinois

Illinois employs both pre-test and post-test processes to evaluate their program effectiveness. Students are asked to evaluate both course design and instructor effectiveness. Certain easy-answer, check-off type questions are asked along with questions that require a written response in order to maintain student interest and response integrity.

The Illinois facility attempts to monitor the success of its students on certificate exmainations after the students complete a certificate preparation/review course. The facility staff elicit feedback from the Illinois environmental agency so that both positive and negative attributes can be identified.

Enrollment numbers are concluded to be a valid indicator of whether a student need is being served or not. If a student re-enrolls at the facility for more classes, this is interpreted as an indication that the student felt positively toward the facility and its offerings.

The staff of the Illinois center take a two to three day retreat each year for introspection/self evaluation. A written critique of the past year and a plan for specific program improvement activities are the output of the evaluation retreat.

Virginia

Virginia utilizes many evaluation procedures, including the following: (1) pre and post tests, (2) student evaluation, (3) informal employer evaluation of students, (4) evaluation of the job activities of past students on an informal basis, (5) determination whether training activities are being supported by various critical facilities on a regular basis, and (6) informally surveying former students on their perception of the effect of their training on the performance of their facility.

Utah

The existing training in Utah is accomplished through an agency which is also the state regulatory inspection agency. The courses as they are currently structured are based on technical deficiencies within the operator community. No formal evaluations are attempted, though regulatory personnel can observe whether the acquired training has had any noticeable effect or has changed plant operations or output. The final exam for many classes consists of a walk around the plant, where the operators are shown ways of translating their newly acquired knowledge into action. Utah has been attempting to enhance self-sufficiency of training within a given facility by upgrading supervisors and major operators.

Utah representatives contend that a measure of their ability as trainers is the budgeted monies for training as a line item at a given facility. The more that is budgeted, the better the supervisor's evaluations of the training received by their employees. Utah instructors attempt to interact with their students during breaks and at the end of sessions, informally soliciting evaluations of course content, needs, and training techniques.

Utah maintains that attendance at their classes by a good mix of sewage treatment plant operators is a positive indication relative to the quality of their training program.

New Jersey

In New Jersey, students are asked to evaluate both the course content and the instructor. The State of New Jersey evaluates the success of the Rutgers program and the junior college/vocational technical school programs on the basis of the ability of a given student to pass a certification examination. Regularly, the JC's and VT's are asked their success ratios on certification tests by state representatives.

In some instances, the state will attempt to judge the success of training based on the success of a wastewater treatment facility.

Unfortunately, the state monitoring program is weak, thus important evaluation criteria are treated cursorily or not at all, and unimportant criteria (such as fresh paint on hand rails) are given significant weighting in a facility evaluation. In general, the state does not address success with respect to the overall WWTP operation, but rather overweights certain aspects of budget, equipment, or maintenance which, in reality, may have very little to do with successful plant operation.

GENERAL DISCUSSION

On the last day of the Workshop at the end of the session, some time was devoted to airing opinions about various facets of 109(b) programs, operations, statewide training, and other topics. The following presents the ideas, questions, and comments which were offered by the group in this final general session.

- In many places, a 109(b) facility/program is judged to be a success if the physical structure has a high use. Utilization, in terms of numbers, though critical to university, college, and vo-technical programs, should not be the major evaluation element.
- If 109(b) is to be a physical supportive program, then there should be a means of evaluating the effectiveness of 109(b) funding in a state. A means of evaluating a 109(b) program should be a part of the Guidance.
- The educational "system" within most states does not care what the EPA thinks. Most states simply do not respond to EPA directives unless required to do so by legislation.
- Somewhere there should be funds for "training grants."
- 109(b) should be incorporated as a part of a total training program legislative package. 109(b) should not be a "one shot deal."
- EPA should establish a follow-up program to 109(b) to show the EPA commitment to Federally funded facilities and programs.
- EPA needs to be aware that a statewide training facility may lose a portion of its physical plant at the whim of state and/or local political needs.
- EPA should identify the way 109(b) funds and philosophy interact with the activities of NTOTC.
- NTOTC-EPA should better define and circulate "where it is going" in the training realm.
- An attempt should be made to solidify and coordinate the various available funding programs while making the 109(b) program more identifiable.

- Since Federal funds have helped initiate Statewide Training Centers, the EPA should offer continuing support to the various programs, both monetarily and philosophically.

- Federal monies should be made available to assist multi-year self-sustaining activities.

- Does Federal money create dependency or self-sufficiency?

- There should be planning for long term effect on wastewater treatment coupled with ongoing graduate student support in water and wastewater education.

- There is an immense need for trained individuals in the field; the perceived need cannot be saturated for a long period of time.

- There should be a national 109(b) Needs Survey.

- Regional Training Coordinators within the EPA have been reassigned, creating a void. Why?

- If a stringent reporting requirement is placed in future 109(b) Guidance, then the EPA will be asking the various grantees to add $25,000-$40,000 to their operating budget in order to comply.

- A concerted effort should be made to funnel 104(g)(1) and other Federal funds to 109(b) centers.

- EPA should look for state support of 109(b) centers in spendable dollars - i.e., line budget, FTE rebate, tuition rebate, etc.

- Some individuals/states utilize 109(b) funds to extend their program ideals and objective into realms which may be inconsistent with legislated 109(b) utilization options.

- 104(g)(1) recipients should be closely scrutinized from an accountability viewpoint.

- EPA should consider interpreting 109(b) legislation to allow provision of "seed money" operating funds.

- EPA should renotify each state, in writing, of the availability of 109(b) funding since it appears that some states are not aware of the potential utilization of 109(b) monies.

- EPA should look to support 109(b) centers in some fashion beyond the initial funding.

- Guidance documents should include a list of limitations on fund expenditures; perhaps a "do's and don'ts" type of chart.

APPENDIX A

109(b) LEGISLATION, EPA GUIDANCE, AND GENERAL COUNSEL OPINIONS

APPENDIX A - PART 1

109(b) IMPLEMENTING LEGISLATION -FEDERAL WATER POLLUTION CONTROL ACT-

FEDERAL WATER POLLUTION CONTROL ACT

(33 U.S.C. 1251, *et seq.*, PL 92-500; Enacted by Congress October 18, 1972, Overriding the President's Veto of October 17, 1972, as amended by PL 93-207, December 28, 1973, and PL 93-243, January 2, 1974; PL 93-592, January 2, 1975)

"TRAINING GRANTS AND CONTRACTS

"Sec. 109. (a) The Administrator is authorized to make grants to or contracts with institutions of higher education, or combinations of such institutions, to assist them in planning, developing, strengthening, improving, or carrying out programs or projects for the preparation of undergraduate students to enter an occupation which involves the design, operation, and maintenance of treatment works, and other facilities whose purpose is water quality control. Such grants or contracts may include payment of all or part of the cost of programs or projects such as—

"(A) planning for the development or expansion of programs or projects for training persons in the operation and maintenance of treatment works;

"(B) training and retraining of faculty members;

"(C) conduct of short-term or regular session institutes for study by persons engaged in, or preparing to engage in, the preparation of students preparing to enter an occupation involving the operation and maintenance of treatment works;

"(D) carrying out innovative and experimental programs of cooperative education involving alternate periods of full-time or part-time academic study at the institution and periods of full-time or part-time employment involving the operation and maintenance of treatment works; and

"(E) research into, and development of, methods of training students or faculty, including the preparation of teaching materials and the planning of curriculum.

"(b)(1) The Administrator may pay 100 per centum of any additional cost of construction of a treatment works required for a facility to train and upgrade waste treatment works operation and maintenance personnel.

"(2) The Administrator shall make no more than one grant for such additional construction in any State (to serve a group of States, where, in his judgment, efficient training programs require multi-State programs), and shall make such grant after consultation with and approval by the State or States on the basis of (A) the suitability of such facility for training operation and maintenance personnel for treatment works throughout such State or States; and (B) a commitment by the State agency or agencies to carry out at such facility a program of training approved by the Administrator.

"(3) The Administrator may make such grant out of the sums allocated to a State under section 205 of this Act, except that in no event shall the Federal cost of any such training facilities exceed $250,000.

APPENDIX A - PART 2

1974 PROGRAM GUIDANCE AND GENERAL COUNSEL OPINIONS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: Section 109(b) of the 1972 Federal Water Pollution Control Act Amendments (FWPCA) - Construction of State Training Facilities for Waste Treatment Operations and Maintenance Personnel.

DATE: May 8, 1974

FROM: John T. Rhett, Deputy Assistant Administrator for Water Program Operations

John T. Rhett

TO: Regional Administrators

The new Construction Grants Regulations for Waste Treatment Works, permit the construction of a state training facility as authorized under Section 109(b) of the FWPCA.

Specifically the Act states that the Administrator (in this case the Regional Administrator) may pay 100% of any additional cost of constructing such a facility for the training and upgrading of Waste Treatment Works Operations and Maintenance Personnel, being no more than one grant in any state, at a cost not to exceed $250,000 per state, provided that the funds are derived from the state's construction grant allocation

My Training Staff and General Counsel for Construction Grants have jointly developed program guidance for effective implementation of Section 109(b). These guidance are based upon General Counsels' legal interpretation of Section 109(b). Additionally, a feasibility study concerning training facility design, costs, and alternatives was made to provide technical information to states considering the construction of a training facility within limitations of $250,000.

I am enclosing a copy of each document for your information. Copies have been forwarded to your Manpower Development Officer and Operation and Maintenance Group. I feel that your personnel should play an active role in encouraging states within the region to exercise their option to construct such a facility.

Four states are already underway in preparing applications for such a construction project and I understand one state has already received approval. Several others have made inquiries to this office for further details.

Relative to our role we will continue to provide overall program direction and staff support to the regional offices and the states. Further, with the fact that Section 109(b) projects compete for high rankings on the States priority list for Construction Grants funding we will continue to work with our State Programs Office and others in an effort to assure equitable consideration.

In order to enhance our effectiveness, I would like the Training Branch in the Municipal Permits and Operations Division to receive a copy of each application for information in order to coordinate our efforts. My Training Staff will keep all regions informed of 109(b) activities, proposals, etc. from other regions. I want my staff to be in a position

EPA Form 1320-6 (Rev. 6-72)

to assist all Regions in providing available training facility information to State Agencies prior to any state spending a lot of time and funds in developing a detailed application or set of specifications.

Our objective this fiscal year is the development and funding of at least ten 109(b) state training projects. I would suggest that each Regional Office review state needs relative to the intent of Section 109(b) and initiate specific action to provide guidance and direction to the state(s) where the training facility need is indicated.

Enclosures

cc: K. Johnson
H. Cahill
W. Gilbert
J. Bahnick
M. Cook
R. Rose

EPA
Program Guidance for Application and Implementation of Sub-Section 109(b) of the 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500)

1. Application for Sub-Section 109(b) grants will be made on EPA form 5700-12 (REV. 10-73) by the Governor of a State. The Governor's appointed representative (if any) should be so stipulated for administering the grant including his position, organization, address and telephone number.

2. A brief narrative for the grant review process should include:

   (a) A description of the physical property to be constructed (include facility type and size, classroom/laboratory space, equipment, special features and site location).

   (b) Types of occupations to be trained (include source of curricula/instructional materials and instructor personnel).

   (c) Anticipated outputs in terms of number and type of personnel from training facility programs as compared with projected statewide operator training and certification needs. (Show interrelationship of training facility program with various state training activities).

3. Certification will be made by the Governor of the State that the training facility will be operated with budgeted funds appropriated by the State. Use of Federal funds for this purpose will not be prohibited but the program must be structured financially in such a fashion that it is not dependent upon such Federal funds.

4. Construction priority will be included in any list of projects to be built with Federal funds received under allocations in Section 205 of P.L. 92-500.

5. Construction of the training facility can include any or all of the following:

   (a) Classrooms

   (b) Laboratories

   (c) Libraries

   (d) A working wastewater treatment plant which may be designed to produce any unusual condition or conditions which may at any time be found in the general area for which training is to be provided.

      (i) It would be desirable that effluent from such a wastewater treatment plant be reintroduced to a sewer system and carried to a regularly operating treatment plant capable of handling such material as influent and returning it to a receiving stream in such condition as to comply with any permit for such a treatment plant. However, this is not mandatory. If an existing operating plant were to be used as a training facility under these guidance, its use as a training facility would not relieve it of compliance with all applicable permit conditions imposed under the NPDES Program.

(ii) The term "working wastewater treatment plant" may be interpreted to mean a mobile unit or units with complete laboratory facilities and a "package" plant, a simulation of such a plant, or a mathematical model of such a plant if the applicant is prepared to certify that such an arrangement will properly prepare the trainee for the occupation he is being trained for.

6. Certification will be made by the Governor of the State that the group or groups of occupations to be trained are critical to Section 204 (a) (4) of P.L. 92-500 and that training provided will enable applicants under Title II of P.L. 92-500 to meet requirements explicit or implicit in the law.

7. Reference should be made to how personnel of such a training facility will be utilized to forecast or assist in forecasting (include procedure and mechanism) needs for Operation and Maintenance personnel and how the training facility can be used to train such personnel. (Note: State environmental agency manpower planning and/or certification units should assist to furnish aggregated training needs and priorities).

8. Reference should be made to how training received at this facility will be accepted, whether in whole or in part toward meeting the requirements of an operator's license should such State have a licensing or certification program.

9. In the event that the training facility will be used by a group of States, reference should be made to any system of training fees or use guarantees that will make up any part of the budget for operation of the facility.

10. If a training fee is to be levied against operators from municipalities and/or private industry of the State where the training facility is located, reference should be made to these charges if they make up any part of the operating budget.

11. Reference should be made to an official State review and evaluation procedure to assure that trainees obtain maximum benefit through such a training facility.

Sub-Section 109(b) of the 1972 Amendments to the Federal Water Pollution Control Act (P.L. 92-500) reads:

(1) The Administrator may pay 100 per centum of any additional cost of

construction of a treatment works required for a facility to train and upgrade waste treatment works operation and maintenence personnel.

(2) The Administrator shall make no more than one grant for such additional construction in any State (to serve a group of States, where, in his judgement, efficient training programs require multistate programs), and shall make such grant after consultation with and approval by the State or States on the basis of:(A) the suitability of such facility for training operation and maintenance personnel for treatment works throughout such State or States; and (B) a commitment by the State agency or agencies to carry out at such a facility a program of training approved by the Administrator.

(3) The Administrator may make such grant out of the sums allocated to a State under Section 205 of this Act, except that in no event shall the Federal costs of any such training facilities exceed $250,000.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

November 19, 1973

OFFICE OF
ENFORCEMENT AND GENERAL COUNSEL

MEMORANDUM

SUBJECT: Implementation of Subsection 109(b) — Construction of Training Facilities — FWPCA Amendments of 1972

FROM: Assistant General Counsel, Grants

TO: Mr. Richard F. Guay
Director, Manpower Development Staff

Your November 1, 1973, memorandum presented the following twelve questions relating to implementation of Section 109(b) of the 1972 FWPCA Amendments:

Question No. 1

Can the present construction grant application form be utilized for funding Subsection 109(b) grants with perhaps an addendum of information relative to the state use of the training facility?

Answer

Yes; the present application form must be utilized (see 40 CFR 30.301-1, as amended) with additional information furnished in the narrative portion of the application to satisfy the requirements of Sections 109 and 110.

Question No. 2

(a) Can the training facility be constructed under a "separate" grant application? (b) Or must the training facility be included in a new construction grant covering a yet-to-be constructed municipal treatment plant?

Answer

The training facility for which assistance is authorized by Section 109(b) may be constructed as a new facility appended to an existing plant, as a new facility in conjunction with expansion or improvement of an existing plant, or as a new facility in conjunction with a new plant.

Question No. 3

If the training facility is to be constructed by a separate construction grant (2a), must the application appear on the state's construction priority list?

Answer

In all cases, including that discussed under Question No. 7, *infra*, the project must be processed through the state priority system, since the funds come from the state's allotment. Current procedures require the state to fully utilize its available allotment in the prioritization of projects. Accordingly, the utilization of funds for Section 109(b) purposes must be addressed in the prioritization of projects to be funded from current state allotments.

Question No. 4

Can the training facility be constructed as an addition to an existing municipal treatment works constructed with prior year(s) Federal grant funds?

Answer

Yes. There is no requirement that such funding be limited to current or future construction grant projects.

Question No. 5

If the training facility returns its effluent back to a municipal plant for treatment, must the training facility be covered by a NPDES permit?

Answer

No; the discharge by the training facility into the municipal plant will be covered by that municipal plant's NPDES permit.

Question No. 6

If the training facility is a point source, must it be covered by a NPDES permit?

Answer

Yes, the training facility would constitute an unlawful discharge under Section 301 of the Act if it were a point source not covered by a NPDES permit.

Question No. 7

Can the training facility be constructed at a site not adjacent to an existing municipal treatment plant, say at a community college under grant conditions noted in 2(a) or 2(b)?

Answer

Yes; the training facility construction authorized by Section 109(b) need not be constructed in conjunction with a municipal waste treatment system. In our opinion, Sec. 109(b) authorizes a direct construction grant to an institution of higher education for the additional cost of training facilities, even though such an institution would not otherwise be eligible for assistance from Title II construction grant funds. Section 109(a) authorizes grants to

> "institutions of higher education, or combinations of such institutions, to assist them in planning, developing, strengthening, improving, or carrying out programs or projects for the preparation of undergraduate students to enter an occupation which involves the design, operation, and maintenance of treatment works, and other facilities whose purpose is water quality control."

Section 109(b) originated in the Senate. The Senate Report to S. 2770 states, at p. 21:

> "The Committee has made only one change in existing law providing for training grants. The change would enable the Administrator to utilize his authority to make grants for construction of waste treatment works under Title II to provide for the construction of necessary education and training facilities for treatment work operation and maintenance personnel."

Section 16 of the prior FWPCA, like Sec. 109(a) of the 1972 FWPCA Amendments, authorized grants to "institutions of higher education, or combinations of such institutions." Congress apparently intended to authorize assistance under Sec. 109(b) to such institutions, as well as to the municipalities, state agencies, and interstate agencies otherwise eligible for construction grants under Title II. Section 109(b) authorizes funds for construction of the "additional cost of construction of treatment works" and such treatment works may be owned either by a municipality (or state or interstate agency) or by an institution of higher education. Eligible costs under Section 109(b) are limited to costs of training facilities at such treatment works.

Question No. 8

What kinds of training facilities can be covered under this subsection? (a) Classrooms; (b) Training Labs (Water Analysis, Chemistry, Biology, etc); (c) Maintenance-Instrumentation-Automation Training Shops; (d) Mobile Training Units (Classroom/Lab on Wheels); (e) Chemical equipment for training; (f) Shop equipment for training; (g) Wastewater treatment plant for training; (h) Training Simulators; (i) All of the above.

Answer

Generally, we believe that Congress intended that all elements necessary for the construction and start-up of a complete training facility be eligible for assistance under Sec. 109(b). Precedent is available historically under the construction grant program covering most of the elements mentioned above, at least under particular justifiable circumstances. Only such equipment or supplies as are necessary for start-up would be eligible, under precedent established under the construction grant program. We question whether the purchase of mobile training units could be justified under any circumstances, ~~however.~~

Question No. 9

Can a state add state funds from various sources to the maximum allowable limit of $250,000 of Federal funds to build additional training facilities?

Answer

While Section 109 explicitly limits Federal assistance to $250,000, there is no limitation whatsoever upon additional assistance from any other party (the grantee, the state, the university, etc.) for the additional cost of such facilities in excess of $250,000.

Question No. 10

Can a state divide the $250,000 into two or more separate grants at two or more different locations?

Answer

No; Section 109(b)(2) provides that "no more than one grant for such additional construction in any State" may be awarded. Furthermore, the section explicitly places a duty upon EPA to construct facilities which will operate upon a multi-state basis, that is, which will serve more than one state, where feasible.

Question No. 11

Can two states combine the $250,000 and construct a training facility for $500,000 in one of the states?

Answer

No; we believe that the intent of Sec. 109(b)(2), which restricts the program to one grant in each state and encourages the utilization of such facilities upon a multi-state basis, and the explicit language of Sec. 109(b)(3), which refers to a single State and states that "in no event shall the Federal cost of any such training facilities exceed $250,000" prohibits "pooling" between state allotments.

Question No. 12

If a training facility does not necessarily require a wastewater treatment plant for training, can the construction grant planning/processing time be reduced in any manner?

Answer

The normal grant application and processing requirements would be applicable, pursuant to the Act and EPA regulations. However, certain of these requirements simply would not be applicable. For example, if the training facilities were not funded in conjunction with an expansion or improvement of a treatment works under Title II, then the facilities planning requirements could not be applicable. Other Title II requirements would have to be examined to determine their applicability to the particular project.

However, we wish to note that Congress apparently did intend that such facilities be constructed in conjunction with a treatment works (although as discussed above, not necessarily in conjunction with a municipal treatment works). At page 21 of the Senate Report which accompanied S. 2770, the report states the understanding that "Such facilities would be additions *to* treatment works." Accordingly, we do not believe that Sec. 109(b) funds can be utilized for the construction of just classrooms which would not be associated or integrated with treatment works, for example, although lecture facilities could be included within Section 109(b) facilities which are "additions to treatment works."

By Joseph M. Zorc
JOSEPH M. ZORC

APPENDIX A - PART 3

1977 REVISION OF 1972 109(b) STATUTES

§ 1259. Training grants and contracts

(a) The Administrator is authorized to make grants to or contracts with institutions of higher education, or combinations of such institutions, to assist them in planning, developing, strengthening, improving, or carrying out programs or projects for the preparation of undergraduate students to enter an occupation which involves the design, operation, and maintenance of treatment works, and other facilities whose purpose is water quality control. Such grants or contracts may include payment of all or part of the cost of programs or projects such as—

(A) planning for the development or expansion of programs or projects for training persons in the operation and maintenance of treatment works;

(B) training and retraining of faculty members;

(C) conduct or short-term or regular session institutes for study by persons engaged in, or preparing to engage in, the preparation of students preparing to enter an occupation involving the operation and maintenance of treatment works;

(D) carrying out innovative and experimental programs of cooperative education involving alternate periods of full-time or part-time academic study at the institution and periods of full-time or part-time employment involving the operation and maintenance of treatment works; and

(E) research into, and development of, methods of training students or faculty, including the preparation of teaching materials and the planning of curriculum.

(b)(1) The Administrator may pay 100 per centum of any additional cost of construction of treatment works required for a facility to train and upgrade waste treatment works operation and maintenance personnel and for the costs of other State treatment works operator training programs, including mobile training units, classroom rental, specialized instructors, and instructional material.

(2) The Administrator shall make no more than one grant for such additional construction in any State (to serve a group of States, where, in his judgment, efficient training programs require multi-State programs), and shall make such grant after consultation with and approval by the State or States on the basis of (A) the suitability of such facility for training operation and maintenance personnel for treatment works throughout such State or States; and (B) a commitment by the State agency or agencies to carry out at such facility a program of training approved by the Administrator. In any case where a grant is made to serve two or more States, the Administrator is authorized to make an additional grant for a supplemental facility in each such State.

(3) The Administrator may make such grant out of the sums allocated to a State under section 1285 of this title, except that in no event shall the Federal cost of any such training facilities exceed $500,000.

(4) The Administrator may exempt a grant under this section from any requirement under section 1284(a)(3) of this title. Any grantee who received a grant under this section prior to enactment of the Clean Water Act of 1977 shall be eligible to have its grant increased by funds made available under such Act.

June 30, 1948, c. 758, Title I, § 109, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 829, and amended Dec. 27, 1977, Pub.L. 95–217, § 10, 91 Stat. 1568.

Historical Note

References in Text. The Clean Water Act of 1977, referred to in subsec. (b)(4), is Pub.L. 95-217. See Short Title of 1977 Amendment note under section 1251 of this title. The funds made available through the Clean Water Act of 1977, referred to in subsec. (b)(4), are the funds available through appropriations authorized by section 1262(c) of this title.

1977 Amendment. Subsec. (b)(1). Pub.L. 95-217, § 10(c), (d), substituted "cost of construction of treatment works required for a facility to train and upgrade waste treatment works operation and maintenance personnel and for the costs of other State treatment works operator training programs, including mobile training units, classroom rental, specialized instructors, and instructional material" for "cost of construction of a treatment works required for a facility to train and upgrade waste treatment works operation and maintenance personnel".

Subsec. (b)(2). Pub.L. 95-217, § 10(e), authorized the Administrator to make an additional grant for a supplemental facility in each of the States in any case where a grant is made to serve two or more States.

Subsec. (b)(3). Pub.L. 95-217, § 10(a), substituted "$500,000" for "$250,000".

Subsec. (b)(4). Pub.L. 95-217, § 10(b), added subsec. (b)(4).

Legislative History. For legislative history and purpose of Pub.L. 92-500, see 1972 U.S.Code Cong. and Adm.News, p. 3668. See, also, Pub.L. 95-217, 1977 U.S. Code Cong. and Adm.News, p. 4326.

APPENDIX A - PART 4

1978 109(b) PROGRAM GUIDANCE AND GENERAL COUNSEL OPINIONS

DATE: 1978

SUBJECT: Guidance for Implementation of Section 109(b)
of the Clean Water Act

FROM: Joseph Bahnick, Chief Ben [illegible] for
Manpower Planning and Training Branch (WH-596)

TO: John T. Rhett, Deputy Assistant Administrator
Office of Water Program Operations (WH-546)

THRU: Robert W. Zeller, Ph.D., Director
Municipal Operations and Training Division (WH-596)

The attached Guidance package was developed by our staff in consultation with the Office of General Counsel, Grants Administration Division, and Regional Workforce Coordinators.

There has been considerable interest generated in the 109(b) State Training Center program since the legislative changes increased the amount of funds to $500,000, increased the utilization of the funds and removed the program from priority list requirements. Several States have indicated a desire to make application for the available funds under the program. As such, we felt a guidance package distributed at the same time as the final regulations would be advantageous for implementation of the program and enhance an understanding of the Regulation requirements.

Attachment

EPA FORM 1320-6 (REV. 3-76)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: OCT 23 1978

SUBJECT: Guidance for Implementation of Section 109(b)
of the Clean Water Act

FROM: John T. Rhett, Deputy Assistant Administrator
Office of Water Program Operations (WH-546)

TO: Regional Administrators
EPA - Regions I-X

The 1977 Amendments to the Clean Water Act have made significant changes under Section 109(b) dealing with State Training Centers. It is recognized that comprehensive widely available training opportunities are a necessity for operators of the thousands of wastewater treatment facilities being constructed with Federal funds. As such, the amended legislation has increased the limit of the 100 percent grants from $250,000 to $500,000; increased the purposes for which funds may be used; allowed for funds to be exempt from priority system requirements and where applicable allows States to construct more than one facility.

Such sweeping changes offer expanded opportunities for each of the States within your Region to increase their training capabilities. Since recent studies are indicating the number one problem associated with plant performance is operator related, this legislative change is timely and should be received with great interest.

In addition to the revised Regulations my training staff, in consultation with the Office of General Counsel, Grants Administration and Regional Workforce Coordinators, has developed the attached Guidance documents. Copies should be made available to interested State Agencies, to assist their efforts in making applications for 109(b) funds.

Attachment

cc: Water Division Directors, Regions I-X
Regional Workforce Coordinators, Regions I-X

EPA FORM 1320-6 (REV. 3-76)

October 16, 1978

USEPA Guidance for Application and Implementation of Sub-Section 109(b) of the Clean Water Act of 1977

The following Guidance is provided by the Municipal Operations and Training Division, Office of Water Program Operations, EPA Headquarters to clarify the legislation and regulations and to assist designated personnel in the application and implementation of Section 109(b), State training facilities.

I. Types of Training Projects

Projects eligible for grant assistance for construction and support of a training facility pursuant to section 109(b) of the Clean Water Act, in which the Regional Administrator may award 100 percent grants from State construction grant allotment or reallotment include:

A) Mobile Training Units

You are allowed to purchase, renovate or supply properly equipment for mobile training units. A unit may also include a complete laboratory facility.

B) Classroom Rental

Payment of charges levied for use of existing classroom facilities that are adequate without modification for operator training is an acceptable project cost. This includes fixed laboratory facilities.

C) Working Wastewater Treatment Plant

The term "working wastewater treatment plant" also can be interpreted to mean a package plant, a simulation of such a plant, or a mathematical model of such a plant if the applicant is prepared to certify that such an arrangement will prepare the learner for the occupation he/she is being trained.

A working wastewater treatment plant may be designed to produce any unusual condition or conditions which may at any time be found in the general area for which training is provided. It is desirable that effluent from such a "working wastewater treatment plant" be reintroduced to a sewer system and carried to a regularly operating treatment plant capable of handling such material as influent and returning it to a receiving stream in such conditions as to comply with any permit for such a treatment plant. If an existing, operating plant were to be used as a training facility, its use as a training facility would not relieve it of compliance with all applicable permit conditions imposed under the NPDES program.

D) Specialized Instructors

Allowable costs include the contracting of instructors to teach technical operator training subject matter that is identified within a training program. The definition of a specialized instructor is a professional and/or technical expert within the field of wastewater pollution control.

II. Application Procedures

An application for section 109(b) grants will be made on EPA Form 5700-32, as revised.

The application should meet the conditions or requirements of Section 201 of the Clean Water Act, i.e., will generally go through the step 1, 2, and 3 grant procedures or where applicable Step 2 + 3.

Part IV Program narrative must include the following for the grant review process:

A. A statement concerning the suitability of the treatment works facility, facilities or eligible training programs for training and maintenance personnel including:

1) Rationale for site selection

2) A description of the physical property to be constructed or renovated. Include facility type, size, classroom/laboratory space, equipment and special features.

B. A written commitment from the State agency or agencies to carry out at such a facility a program of training approved by the Regional administrator including:

1) Certification that a training facility will be operated with budgeted funds from tuition, fees or State appropriation. Use of Federal funds for this purpose will not be prohibited but the program must be structured financially in such a fashion that it is not dependent upon such Federal funds for continuing operations.

2) Certification that the group or groups of occupations to be trained are critical to Section 204(a)(4) of the Clean Water Act and that training provided will enable applicants under Title II of the Clean Water Act to meet requirements explicit or implicit in the Law.

C. An engineering report if a facility is to be constructed or renovated including:

1) Facility design data

2) Cost estimates for design, construction or renovation of each facility

3) Schedule for completion of design and construction or renovation.

D. A detailed outline of the training programs which would include, for 1, 3, and 5 year projections, the following:

1) An assessment of training needs in term of numbers and types of personnel from training programs as compared with projected State-wide operator training and certification needs. The assessment should specifically relate to problem areas where enforcement action is pending. Reference should be made to how training received at this facility or under this program will be accepted, whether in whole or in part, toward meeting the requirements for an operator's license. Also, reference should be made to an official State review and evaluation procedure to assure that trainees obtain maximum benefit through such a training facility or program such as Continuing Education Units (CEU) for training received.

2) How the need for training was determined, including:

   a) specific person responsible for assessment report, showing title and phone number
   b) methodology utilized.

3) Who would be trained under this program or at this facility including:

   a) occupations
   b) skill levels, i.e., levels I, II, III, or IV as defined by Association of Boards of Certification, Classification System.

4) What curriculum and materials would be used.

5) What type of delivery system will be used to conduct training, i.e., who will be the grant recipient and how will training be presented.

6) What resources are available for the programs, (include State, Federal and local resources.)

7) A budget breakdown (rounded to the nearest dollar) on Federal, State and local cost for:

    1. personnel
    2. fringe benefits
    3. travel
    4. Consultants
    5. materials, supplies
    6. equipment
    7. construction
    8. and any other costs.

    The suggested format for this purpose is enclosed as Attachment A.

    If a training fee is to be levied against operators from municipalities and/or private industry of the State where the training facility is located, reference should be made to these charges and they should be a part of the operating budget.

8) Show interrelationship of the facility or programs to other State training programs or various State training activities.

III. Grant Review Process

Besides the normal grant review process established by the regions, the regional office should forward a copy of the application to the Operator Training and Certification Section, Division of Municipal Operations and Training, Washington, D.C., for comment on the proposed project. Headquarters comments are intended to significantly affect the quality of the project by:

A) Providing guidance and assistance in the selection of training media; instructional materials and equipment; design layout for classroom/resources/lab activities.

B) Providing guidance as to the projects alignment with National EPA policy direction for operator training programs.

C) Providing coordination and assistance with other 109(b) facilities in the total national impact of operator training.

D) Providing guidance as to other funding sources for operator training, i.e., DOL, HEW, DOD.

IV. Legal Counsel Response to Questions Regarding Implementation of Sub-Section 109(b) - State Training Facilities

A. Response to questions submitted to Office of Enforcement and General Counsel for review and comment. (11/19/73).

1) Question:

Can the training facility be constructed under a "separate" grant application? or must the training facility be included in a new construction grant?

Answer:

The training facility for which assistance is authorized by Section 109(b) may be constructed as a new facility appended to an existing plant, as a new facility in conjunction with expansion or improvement of an existing plant, or as a new facility in conjunction with a new plant.

2) Question:

Can the training facility be constructed as an addition to an existing municipal treatment works constructed with prior year(s) Federal grant funds?

Answer:

Yes. There is no requirement that such funding be limited to current or future construction grant projects.

3) Question:

If the training facility returns its effluent back to a municipal plant for treatment, must the training facility be covered by a NPDES permit?

Answer:

No; the discharge by the training facility into the municipal plant will be covered by that municipal plant's NPDES permit.

4) Question:

If the training facility is a point source, must it be covered by a NPDES permit?

Answer:

Yes, the training facility would constitute an unlawful discharge under Section 301 of the Act if it were a point source not covered by a NPDES permit.

5) Question:

Can the training facility be constructed at a site not adjacent to an existing municipal treatment plant?

Answer:

Yes; the training facility construction authorized by Section 109(b) need not be constructed in conjunction with a municipal waste treatment system. In our opinion, Sec. 109(b) authorizes a direct construction grant to an institution of higher education for the additional cost of training facilities, even though such an institution would not otherwise be eligible for assistance from Title II construction grant funds. Section 109(a) authorizes grants to:

> "institutions of higher education, or combinations of such institutions, to assist them in planning, developing, strengthening, improving, or carrying out programs or projects for the preparation of undergraduate students to enter an occupation which involves the design, operation, and maintenance of treatment works, and other facilities whose purpose is water quality control."

Section 109(b) originated in the Senate. The Senate Report to S. 2770 states, at p. 21:

> "The Committee has made only one change in existing law providing for training grants. The change would enable the Administrator to utilize his authority to make grants for construction of waste treatment works under Title II to provide for the construction of necessary education and training facilities for treatment work operation and maintenance personnel."

Section 16 of the prior FWPCA, like Sec. 109(a) of the 1972 FWPCA Amendments, authorized grants to "institutions of higher education, or combinations of such institutions." Congress apparently intended to authorize assistance under Sec. 109(b) to such institutions, as well as to the municipalities, State agencies, and interstate agencies otherwise eligible for construction grants under Title II. Section 109(b) authorizes funds for construction of the "additional cost of construction of treatment works" and such treatment works may be owned either by a municipality (or State or interstate agency) or by an institution of higher education. Eligible costs under Section 109(b) are limited to costs of training facilities at such treatment works.

6) Question:

Can a State add State funds from various sources to the maximum allowable limit of $500,000 of Federal funds to build additional training facilities?

Answer:

While Section 109 explicitly limits Federal assistance to $500,000, there is no limitation whatsoever upon additional assistance from any other party (the grantee, the State, the university, etc.) for the additional cost of such facilities in excess of $500,000.

7) Question:

If a training facility does not necessarily require a wastewater treatment plant for training, can the constuction grant planning/processing time be reduced in any manner?

Answer:

The normal grant application and processing requirements would be applicable, pursuant to the Act and EPA regulations including Step 2 and 3. However, certain of these requirements simply would not be applicable. For example, if the training facilities were not funded in conjunction with an expansion or improvement of a treatment works under Title II, then the facilities planning requirements could not be applicable. Other Title II requirements would have to be examined to determine their applicability to the particular project.

However, we wish to note that Congress apparently did intend that such facilities be constructed in conjunction with a treatment works (although as discussed above, not necessarily in conjunction with a municipal treatment works). At page 21 of the Senate Report which accompanied S. 2770, the report states the understanding that "Such facilities would be additions to treatment works". Accordingly, we do not believe that Sec. 109(b) funds can be utilized for the construction of just classrooms which would not be associated or integrated with treatment works, for example, although lecture facilities could be included within Section 109(b) facilities which are "additions to treatment works."

B. Response to questions submitted to General Counsel for review and comment. (4/19/78)

1) Question:

When a State has pooled a portion of its 109(b) allotment with another State:

a. is there a maximum grant amount allowed for a supplemental facility?
b. can remaining funds be used to support the activities of the regional facility?
c. can the total combined Federal cost for the Regional facility exceed $500,000?

Answer:

a. The maximum amount allowed for a supplemental State facility is the remaining portion of the $500,000 allocation provided for under Section 109(b) which was not used in the grant for the Regional facility.
b. Remaining funds may be used to support activities of the Regional facility so far as costs are eligible.
c. Yes, each State participating in the Regional facility may contribute their entire allocation of $500,000.

2) Question:

The 109(b) legislation is directed primarily toward construction while a more cost-effective expenditure might be the purchase of existing facilities, i.e., abandoned plants suitable for conversion to classroom use. Is purchase and renovation of a facility eligible for a grant?

Answer:

Purchase and renovation may be eligible for grant assistance, however, the project must demonstrate that the facility will increase training capabilities of the State and are not used just to upgrade a facility.

3. Question:

If a State has already spent $500,000 ($250,000 Federal funds, $250,000 State funds) for a 109(b) facility under previous Federal limits, can any of the States costs be recovered either by subsequent grant amendments or new grant applications?

Answer:

If additional construction or programs are to be incorporated into the project, the grant may be amended to provide additional funds. However, grant funds were not intended to reimburse the State for previously expended funds, and as such, costs cannot be recovered.

4. Question:

What is the status of the amended 109(b) grant in States that have undertaken construction of a training facility that was limited to $250,000 by the original Act. May they increase their grant to the new maximum of $500,000 or are they entitled to a whole new allotment of $500,000?

Answer:

Each State is allowed only one grant for a maximum of $500,000. Subsequent project changes, grant amendments, etc., can only increase the grant to the maximum allowed by law, which is $500,000. Therefore, a $250,000 project can only be increased another $250,000 to a maximum of $500,000.

5) Question:

(a) What are the limitations on the States authority to build more than one facility? (b) Are all States eligible to build satellite facilities or is this restricted to only those States participating in a Regional facility?

Answer:

The legislation is not clear on this point. It appears that the intent was to limit satellite facilities to States engaging in a Regional facility with one or more other States. However, if a State can show that more than one facility is cost effective for their State, it may be allowed. In any case the total State allotment remains limited to $500,000 whether one facility or two is built.

6. Question:

(a) The legislation refers to "mobile training unit, classroom rental, specialized instructors and instructional material", could a grant be made solely for these items without the construction of a formal facility? (b) If a facility has been built either with State funds or previous 109(b) funds, could the increased allocation allowed under the amended legislation be used solely for these purposes?

Answer:

The basic intent of the legislation was to provide a central training facility for operation and maintenance personnel for WWTP's. It is apparent that several States do not lend themselves to this concept due to geographical and economical considerations. Under certain constraints as indicated, it may be desirous to place primary emphasis on mobility of training capabilities. As such, grants limited to mobile training unit, etc., would be allowed. However, it is recommended that the State provide a written commitment to continue such training for a period of at least 10 years, unless useful life of mobile unit is less.

7. Question:

The legislation also refers to "costs of other... operator training programs..." Traditionally training programs have been defined to mean an organized schedule of training specifically designed to upgrade skills. A training program would have an identified lead instructor or course director. It would exclude administrative duties and responsibilities as being outside the "program" and such costs for the training program would be restricted to Instructor salaries and travel, instructional material, equipment, and specialized need assessments to determine course offerings. Is this definition acceptable under the new legislation and revised Regulation?

Answer:

"Costs of other...operator training programs" is clearly defined in the regulation to be restricted to mobile training units, classroom rental, specialized instructor and instructional material, which closely follows the suggested definition in the question. Clearly administrative costs were intended to be the responsibility of some source other than Section 109(b) funds. It is suggested Section 106 might be a source of available funds for this purpose.

APPENDIX A - PART 5

MUNICIPAL WASTEWATER TREATMENT WORKS CONSTRUCTION GRANTS PROGRAM

-109(b) CHANGES-

federal register

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1978
PART III

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ENVIRONMENTAL PROTECTION AGENCY

■

MUNICIPAL WASTEWATER TREATMENT WORKS

Construction Grants Program

sistance grants which are deducted from the State allotment. EPA does not have the authority to reimburse contractors for their costs of conducting successful litigation of contract disputes with grantees even if EPA is involved in the dispute.

One commenter suggested that the reference in the regulation permitting oral requests for assistance under this authority in emergency situations is unnecessary. It is our position that since written requests for assistance were mentioned in the regulation as the proper means of requesting assistance, it is also appropriate to mention that oral requests will be accepted on an emergency basis.

Regulatory changes on contract enforcement have been made in §§ 35.936-5, 35.936-8 and by adding a new § 35.970.

TRAINING GRANTS

Section 10 of the 1977 Act amends section 109(b) of the FWPCA to increase the flexibility in the expenditure of grant funds for wastewater treatment works operation and maintenance training. It also increases the authorization for such grants from $250,000 to $500,000. Under the provision, the Administrator may exempt such grants from the priority list requirement of section 204(a)(3) of the FWPCA. Agency guidance for application and implementation of subsection 109(b) of the 1977 Act, will be distributed to EPA Regional Administrators and will be available for State use.

Changes to the regulations implementing this amendment are made in §§ 35.915(a), 35.920(e), and 35.930-1(b).

MISCELLANEOUS COMMENTS

The Agency has also received comments and questions on topics not covered by the categories dealt with above. One organization asked that nonprofit agencies be eligible as 201 grantees in rural areas which might otherwise be neglected by a public entity. Two sections of the Act preclude such an approach. Section 201(g)(1) provides for grants to States, municipalities or intermunicipal or interstate agencies. Section 204(b)(1)(C) requires that a grantee have certain "legal, institutional, managerial, and financial" capabilities. Without a change in the law, the Agency cannot make grants for 201 projects to nonprofit agencies.

A similar response must be made to those who suggested that the Federal share of all 201 projects be increased to 85 percent or even 100 percent. Sections 202(a)(1) and 202(a)(2) specify a Federal share of 75 percent for conventional projects and 85 percent for eligible innovative and alternative projects.

The Urban Environment Conference asked that these regulations be aligned with the work of the Agency's Task Force on Minority Business Enterprise. The task force has made policy recommendations which will apply to Agency grant programs. These recommendations will be published for comment and any decisions made thereafter will apply to the 201 program. Inclusion of task force findings would be premature at this juncture. The Urban Environment Conference also asked that 201 regulations provide for the health and safety of workers during the construction and operation of a sewage treatment plant. While the well-being of such workers is of great concern to the Agency, the promulgation and enforcement of worker safety standards is the province of the Occupational Safety and Health Administration (OSHA). The Agency is not in a position to review or enforce OSHA regulations.

The New Jersey Department of the Public Advocate called on the Agency to include a fair housing review as a component of the 201 process and to insure that population projections are not based on potentially exclusionary zoning but instead include allocations for low and moderate income housing. The Agency is sensitive to its fair housing obligations and does not want communities to use 201 policy as an excuse to perpetuate discriminatory practices. Yet, there are forceful reasons why a 201 facility plan should not become an overall community development plan. The delay inherent in the many local issues that might be thus injected would make the goals set by the Act impossible to achieve. The Agency does have guidance insuring construction grants program compliance with title VI of the Civil Rights Act of 1964. The Agency is also considering additional administrative measures to enhance compliance with title VI.

As for the use of population projections that may not include an allocation for low and moderate income housing or may be based on exclusionary zoning, it should be noted that the population projection approach outlined in the cost-effectiveness analysis guidelines is a joint Federal/State/local venture. State population figures are determined on the Federal level to insure national consistency. These figures are then broken down by State and local agencies. During this disaggregation process, local problems and trade-offs can be considered in some detail when determining population figures for a given community or region. State and local governments are in a far better position than EPA to determine the appropriate disaggregation methodologies. Consistent, overall State totals which provide for some flexibility best serve the water quality objectives mandated by the Act by avoiding plant overdesign and by spreading resources to as many eligible communities as possible.

The National Marine Fisheries Service asked that these regulations prohibit the filling of wetlands and provide for consultation with the Departments of Commerce and Interior if wetlands will be disturbed by a 201 project. Regulations for the construction grants program refer to environmental requirements in general terms because so many laws and executive orders dealing with special environmental matters apply to the program. It should be noted that Executive Order 11990, relating to wetland protection, is explicitly mentioned and followed in general EPA grant regulations published as final rules in the FEDERAL REGISTER on June 30, 1978 (40 CFR 30.410-5 as found on 43 FR 28486). EPA recently issued a statement of procedures defining policy for use in assessing the impacts of Agency actions on floodplains and wetlands. The construction grants program will issue its own program guidance to supplement the Agency procedures. It will also implement the requirements on wetlands that are expected to be included in the upcoming revision of 40 CFR Part 6, Preparation of Environmental Impact Statements.

Finally, it was suggested that these regulations require preparation of an economic impact analysis statement under Executive Order 12044. The Agency believes that the promulgation of these regulations does not impose economic costs large enough to necessitate such an economic impact analysis.

TECHNICAL AMENDMENTS

Technical amendments to the construction grants regulations were proposed in the June 2, 1978, issue of the FEDERAL REGISTER. The purpose of the technical amendments is to make, in conjunction with the final promulgation of Clean Water Act changes, other changes which are necessary to ease administration of and participation in the construction grants program. These changes include changes based upon operating experience as reflected in program requirements memoranda; changes based upon deviations from the current regulations which have been issued by the Director, Grants Administration Division; changes that correct operational problems or which appear to be administratively desirable; and changes which simplify the language and readability of the regulations.

The discussion of the major changes and the public comments which were received are presented below. We do not discuss provisions on which no changes which may be proposed in the future.

EDITORIAL CHANGES

Throughout the regulations we have made editorial changes to simplify the language. Several should be noted. We have eliminated the phrase, "but not limited to" following the word "include" or "including." We have deleted titles of cross-referenced sections in most cases (particularly from the subagreement regulations).

We made editorial changes in appendices C-1 and C-2, which contain clauses for inclusion in subagreements with engineers and construction contractors. Except for minor changes mentioned elsewhere in the preamble, no change in meaning whatsoever is intended. Old supplies of appendices C-1 and C-2 may continue to be used. However, grantees are cautioned that when using an old edition of appendix C-2, the new clause 17 (Buy American) must be added. Some grantees or engineers may prefer to use the new version of appendix C-1, because of the corrected reference to § 35.908 in clause 2.

Effective date: This subpart will be effective on October 1, 1978, unless otherwise specified in particular sections. Good cause exists for an effective date prior to 30 days after publication in the FEDERAL REGISTER because many of the requirements are made effective by the 1977 act on October 1, 1978, and because of the need to start these interrelated requirements together to ensure program continuity.

Dated: September 15, 1978.

DOUGLAS M. COSTLE,
Administrator.

40 CFR Part 35 is amended by revising subpart E to read as follows:

Subpart E—Grants for Construction of Treatment Works—Clean Water Act

Sec.
35.900 Purpose.
35.901 Program policy.
35.903 Summary of construction grant program.
35.905 Definitions.
35.907 Municipal pretreatment program.
35.908 Innovative and alternative technologies.
35.909 Step 2 + 3 grants.
35.910 Allocation of funds.
35.910-1 Allotments.
35.910-2 Period of availability; reallotment.
35.910-3 [Reserved]
35.910-4 [Reserved]
35.910-5 Additional allotments of previously withheld sums.
35.910-6 Fiscal year 1977 public works allotments.
35.910-7 Fiscal year 1977 Supplemental Appropriations Act allotments.
35.910-8 Allotments for fiscal years 1978-81.
35.912 Delegation to State agencies.

Sec.
35.915 State priority system and project priority list.
35.915-1 Reserves related to the project priority list.
35.917 Facilities planning (step 1).
35.917-1 Content of facilities plan.
35.917-2 State responsibilities.
35.917-3 Federal assistance.
35.917-4 Planning scope and detail.
35.917-5 Public participation.
35.917-6 Acceptance by implementing governmental units.
35.917-7 State review and certification of facilities plan.
35.917-8 Submission and approval of facilities plan.
35.917-9 Revision or amendment of facilities plan.
35.918 Individual systems.
35.918-1 Additional limitations on awards for individual systems.
35.918-2 Eligible and ineligible costs.
35.918-3 Requirements for discharge of effluents.
35.920 Grant application.
35.920-1 Eligibility.
35.920-2 Procedure.
35.920-3 Contents of application.
35.925 Limitations on award.
35.925-1 Facilities planning.
35.925-2 Water quality management plans and agencies.
35.925-3 Priority determination.
35.925-4 State allocation.
35.925-5 Funding and other capabilities.
35.925-6 Permits.
35.925-7 Design.
35.925-8 Environmental review.
35.925-9 Civil rights.
35.925-10 Operation and maintenance program.
35.925-11 User charges and industrial cost recovery.
35.925-12 Property.
35.925-13 Sewage collection system.
35.925-14 Compliance with environmental laws.
35.925-15 Treatment of industrial wastes.
35.925-16 Federal activities.
35.925-17 Retained amounts for reconstruction and expansion.
35.925-18 Limitation upon project costs incurred prior to award.
35.925-19 [Reserved]
35.925-20 Procurement.
35.925-21 Storm sewers.
35.926 Value engineering (VE).
35.927 Sewer system evaluation and rehabilitation.
35.927-1 Infiltration/Inflow analysis.
35.927-2 Sewer system evaluation survey.
35.927-3 Rehabilitation.
35.927-4 Sewer use ordinance.
35.927-5 Project procedures.
35.928 Requirements for an industrial cost recovery system.
35.928-1 Approval of the industrial cost recovery system.
35.928-2 Use of industrial cost recovery payments.
35.928-3 Implementation of the industrial cost recovery system.
35.928-4 Moratorium on industrial cost recovery payments.
35.929 Requirements for user charge system.
35.929-1 Approval of the user charge system.
35.929-2 General requirements for all user charge systems.
35.929-3 Implementation of the user charge system.

Sec.
35.930 Award of grant assistance.
35.930-1 Types of projects.
35.930-2 Grant amount.
35.930-3 Grant term.
35.930-4 Project scope.
35.930-5 Federal share.
35.930-6 Limitation on Federal share.
35.935 Grant conditions.
35.935-1 Grantee responsibilities.
35.935-2 Procurement.
35.935-3 Property.
35.935-4 Step 2 + 3 grants.
35.935-5 Davis-Bacon and related statutes.
35.935-6 Equal employment opportunity.
35.935-7 Access.
35.935-8 Supervision.
35.935-9 Project initiation and completion.
35.935-10 Copies of contract documents.
35.935-11 Project changes.
35.935-12 Operation and maintenance.
35.935-13 Submission and approval of industrial cost recovery system.
35.935-14 Final inspection.
35.935-15 Submission and approval of user charge systems.
35.935-16 Sewer use ordinance and evaluation/rehabilitation program.
35.935-17 Training facility.
35.935-18 Value engineering.
35.935-19 Municipal pretreatment program.
35.935-20 Innovative processes and techniques.
35.936 Procurement.
35.936-1 Definitions.
35.936-2 Grantee procurement systems; State or local law.
35.936-3 Competition.
35.936-4 Profits.
35.936-5 Grantee responsibility.
35.936-6 EPA responsibility.
35,936-7 Small and minority business.
35.936-8 Privity of contract.
35.936-9 Disputes.
35.936-10 Federal procurement regulations.
35.936-11 General requirements for subagreements.
35.936-12 Documentation.
35.936-13 Specifications.
35.936-14 Force account work.
35.936-15 Limitations on subagreement award.
35.936-16 Code or standards of conduct.
35.936-17 Fraud and other unlawful or corrupt practices.
35.936-18 Negotiation of subagreements.
35.936-19 Small purchases.
35.936-20 Allowable costs.
35.936-21 Delegation to State agencies; certification of procurement.
35.936-22 Bonding and insurance.
35.937 Subagreements for architectural or engineering services.
35.937-1 Type of contract (subagreement).
35.937-2 Public notice.
35.937-3 Evaluation of qualifications.
35.937-4 Solicitation and evaluation of proposals.
35.937-5 Negotiation.
35.937-6 Cost and price considerations.
35.937-7 Profit.
35.937-8 Award of subagreement.
35.937-9 Required solicitation and subagreement provisions.
35.937-10 Subagreement payments—architectural or engineering services.
35.937-11 Applicability to existing contracts.
35.937-12 Subcontracts under subagreements for architectural or engineering services.

Sec.

35.938 Construction contracts (subagreements) of grantees.
35.938-1 Applicability.
35.938-2 Performance by contract.
35.938-3 Type of contract.
35.938-4 Formal advertising.
35.938-5 Negotiation of contract amendments (change orders).
35.938-6 Progress payments to contractors.
35.938-7 Retention from progress payments.
35.938-8 Required construction contract provisions.
35.938-9 Subcontracts under construction contracts.
35.939 Protests.
35.940 Determination of allowable costs.
35.940-1 Allowable project costs.
35.940-2 Unallowable costs.
35.940-3 Costs allowable, if approved.
35.940-4 Indirect costs.
35.940-5 Disputes concerning allowable costs.
35.945 Grant payments.
35.950 Suspension or termination of grants.
35.955 Grant amendments to increase grant amounts.
35.960 Disputes.
35.965 Enforcement.
35.970 Contract enforcement.
Appendix A—Cost-effectiveness analysis guidelines.
Appendix B—Federal guidelines—user charges for operation and maintenance of publicly owned treatment works.
Appendix C-1—Required provisions—consulting engineering agreements.
Appendix C-2—Required provisions—construction contracts.
Appendix D—EPA transition policy—existing consulting engineering agreements.
Appendix E—Innovative and alternative technology guidelines.

AUTHORITY: Sections 109(b), 201 through 205, 207, 208(d), 210 through 212, 215 through 217, 304(d)(3), 313, 501, 502, 511, and 516(b) of the Clean Water Act, as amended, 33 U.S.C. 1251 et seq.

§ 35.900 Purpose.

(a) This subpart supplements the EPA general grant regulations and procedures (part 30 of this chapter) and establishes policies and procedures for grants to assist in the construction of waste treatment works in compliance with the Clean Water Act.

(b) A number of provisions of this subpart which contained transition dates preceding October 1, 1978, have been modified to delete those dates. However, the earlier requirements remain applicable to grants awarded when those provisions were in effect. The transition provisions in former §§ 35.905-4, 35.917, and 35.925-18 remain applicable to certain grants awarded through March 31, 1981.

(c) Technical and guidance publications (MCD series) concerning this program which are issued by EPA may be ordered from: General Services Administration (8FFS), Centralized Mailing List Services, Building 41, Denver Federal Center, Denver, Colo. 80225. In order to expedite processing of requests, persons desiring to obtain these publications should request a copy of EPA form 7500-21 (the order form listing all available publications), from EPA Headquarters, Municipal Construction Division (WH-547) or from any regional office of EPA.

§ 35.901 Program policy.

The primary purpose of Federal grant assistance available under this subpart is to assist municipalities in meeting enforceable requirements of the Act, particularly, applicable national pollution discharge elimination system (NPDES) permit requirements. The Regional Administrator and States are authorized and encouraged to administer this grant program in a manner which will most effectively achieve the enforceable requirements of the Act.

§ 35.903 Summary of construction grant program.

(a) The construction of federally financed waste treatment works is generally accomplished in three steps: Step 1, facilities plans and related elements; step 2, preparation of construction drawings and specifications; and step 3, building of a treatment works.

(b) The Regional Administrator may award grant assistance for a step 1, step 2, or step 3 project, or, as authorized by § 35.909, for a project involving a combination of step 2 and step 3 (step 2+3 grant). For a step 1, step 2, or step 3 grant award, a "project" may consist of an entire step or any "treatment works segment" (see § 35.905) of construction within a step. In the case of step 2+3 grant awards, a project must consist of all associated step 2 and step 3 work; segmenting is not permitted.

(c) Grants are awarded from State allocations (see § 35.910 et seq.) under the Act. No grant assistance may be awarded unless priority for a project has been determined in accordance with an approved State priority system under § 35.915. The State is responsible for determining the amount and timing of Federal assistance to each municipality for which treatment works funding is needed.

(d) An applicant will initially define the scope of a project. The State may revise this initial project scope when priority for the project is established. The Regional Administrator will make the final determination of project scope when grant assistance is awarded (see § 35.930-4).

(e) For each proposed grant, an applicant must first submit his application to the State agency. The basic grant application must meet the requirements for the project in § 35.920-3. If grant assistance for subsequent related projects is necessary, the grantee shall make submissions in the form of amendments to the basic application. The State agency will forward to the appropriate EPA Regional Administrator complete project applications or amendments to them for which the State agency has determined priority. The grant will consist of the grant agreement resulting from the basic application and grant amendments awarded for subsequent related projects.

(f) Generally, grant assistance for projects involving step 2 or 3 will not be awarded unless the Regional Administrator first determines that the facilities planning requirements of §§ 35.917 to 35.917-9 of this subpart have been met. Facilities planning may not be initiated prior to approval of a step 1 grant or written approval of a "plan of study" accompanied by a reservation of funds (see § 35.925-18 and definition of "construction" in § 35.905).

(g) If initiation of step 1, 2, or 3 construction (see definition of "construction" in § 35.905) occurs before grant award, costs incurred before the approved date of initiation of construction will not be paid and award will not be made except under the circumstances in § 35.925-18.

(h) The Regional Administrator may not award grant assistance unless the application meets the requirements of § 35.920-3 and he has made the determinations required by § 35.925 et seq.

(i) A grant or grant amendment awarded for a project under this subpart shall constitute a contractual obligation of the United States to pay the Federal share of allowable project costs up to the amount approved in the grant agreement (including amendments) in accordance with § 35.930-6. However, this obligation is subject to the grantee's compliance with the conditions of the grant (see § 35.935 et seq.) and other applicable requirements of this subpart.

(j) Sections 35.937-10, 35.938-6 and 35.945 authorize prompt payment for project costs which have been incurred. The initial request for payment may cover the Federal share of allowable costs incurred before the award except as otherwise provided in § 35.925-18. Before the award of such assistance, the applicant must claim in the application for grant assistance for that project all allowable costs incurred before initiation of project construction. An applicant may make no subsequent claim for payment for such costs. The estimated amount of any grant or grant amendment, including any prior costs, must be established in conjunction with determination of priority for the project. The Regional Administrator must determine that the project costs are allowable under § 35.940 et seq.

(k) Under section 204(b) of the Act, the grantee must comply with applica-

State	Percentage
Florida	3.8366
Georgia	1.9418
Hawaii	.7928
Idaho	.4952
Illinois	5.1943
Indiana	2.7678
Iowa	1.2953
Kansas	.8803
Kentucky	1.4618
Louisiana	1.2625
Maine	.7495
Maryland	2.7777
Massachusetts	2.9542
Michigan	4.1306
Minnesota	1.4691
Mississippi	.9660
Missouri	2.4957
Montana	.3472
Nebraska	.5505
Nevada	.4138
New Hampshire	.8810
New Jersey	3.5715
New Mexico	.3819
New York	10.6209
North Carolina	1.9808
North Dakota	.3107
Ohio	6.4655
Oklahoma	.9279
Oregon	1.2974
Pennsylvania	4.3616
Rhode Island	.5252
South Carolina	1.1766
South Dakota	.3733
Tennessee	1.5486
Texas	4.3634
Utah	.4457
Vermont	.3845
Virginia	1.9602
Washington	1.7688
West Virginia	1.7863
Wisconsin	1.9503
Wyoming	.3003
Guam	.0744
Puerto Rico	1.1734
Virgin Islands	.0378
American Samoa	.0616
Trust Territory of Pacific	.1530
Total	100.00

(b) Based on paragraph (a), and table 4 of the committee print, the following authorizations are allotted among the States subject to the limitations of paragraph (c) of this section:

State	For fiscal year 1978	For each of the fiscal years 1979, 1980, 1981
Alabama	$57,789,000	$64,210,000
Alaska	19,057,500	21,175,000
Arizona	34,906,500	38,785,000
Arkansas	33,808,500	37,565,000
California	357,624,000	397,360,000
Colorado	41,341,500	45,935,000
Connecticut	49,824,000	55,360,000
Delaware	17,982,000	19,980,000
District of Columbia	14,368,500	15,965,000
Florida	172,647,000	191,830,000
Georgia	87,381,000	97,090,000
Hawaii	35,676,000	39,640,000
Idaho	22,284,000	24,760,000
Illinois	233,743,500	259,715,000
Indiana	124,551,000	138,390,000
Iowa	58,288,500	64,765,000
Kansas	39,613,500	44,015,000
Kentucky	65,781,000	73,090,000
Louisiana	56,812,500	63,125,000
Maine	33,727,500	37,475,000
Maryland	124,996,500	138,885,000
Massachusetts	132,939,000	147,710,000
Michigan	185,877,000	206,530,000
Minnesota	66,109,500	73,455,000
Mississippi	43,470,000	48,300,000
Missouri	112,306,500	124,785,000
Montana	15,624,000	17,360,000
Nebraska	24,772,500	27,525,000
Nevada	18,621,000	20,690,000
New Hampshire	39,645,000	44,050,000
New Jersey	160,717,500	178,575,000
New Mexico	17,185,500	19,095,000
New York	477,940,500	531,045,000
North Carolina	89,136,000	99,040,000
North Dakota	13,981,500	15,535,000
Ohio	290,947,500	323,275,000
Oklahoma	41,755,500	46,395,000
Oregon	58,383,000	64,870,000
Pennsylvania	196,272,000	218,080,000
Rhode Island	23,634,000	26,260,000
South Carolina	52,947,000	58,830,000
South Dakota	16,798,500	18,665,000
Tennessee	69,687,000	77,430,000
Texas	196,353,000	218,170,000
Utah	20,056,500	22,285,000
Vermont	17,302,500	19,225,000
Virginia	88,209,000	98,010,000
Washington	79,596,000	88,440,000
West Virginia	80,383,500	89,315,000
Wisconsin	87,763,500	97,515,000
Wyoming	13,513,500	15,015,000
Guam	3,348,000	3,720,000
Puerto Rico	52,803,000	58,670,000
Virgin Islands	1,701,000	1,890,000
American Samoa	2,772,000	3,080,000
Trust Territory of the Pacific Islands	6,885,000	7,650,000
Total	4,500,000,000	5,000,000,000

(c) The authorizations in paragraph (b) of this section depend on appropriation. Therefore, the Regional Administrator may not obligate any portion of any authorization for a fiscal year until a law is enacted appropriating part or all of the sums authorized for that fiscal year. If sums appropriated are less than the sums authorized for a fiscal year, EPA will apply the percentages in paragraph (a) of this section to distribute all appropriated sums among the States, and promptly will notify each State of its share. The Regional Administrator may not obligate more than the State's share of appropriated sums.

(d) If supplementary funds are appropriated in any fiscal year under section 205(e) of the Act to carry out the purposes of this paragraph, no State shall receive less than one-half of 1 percent of the total allotment among all States for that fiscal year, except that in the case of Guam, the Virgin Islands, American Samoa, and the Trust Territories not more than thirty-three one-hundredths of 1 percent of the total allotment shall be allotted to all four of those jurisdictions. If for any fiscal year the amount appropriated to carry out this paragraph is less than the full amount needed, the following States will share in any funds appropriated for the purposes of this paragraph in the following percentages, drawn from the note to table 3 of committee print numbered 95-30 of the Committee on Public Works and Transportation of the House of Representatives:

State	Percentage
Alaska	8.4449
Delaware	7.1459
District of Columbia	12.0812
Idaho	.3416
Montana	10.8736
Nevada	6.1353
New Mexico	8.4057
North Dakota	13.4733
South Dakota	9.9178
Utah	3.9648
Vermont	8.2366
Wyoming	14.3135
Total	100.00

§ 35.912 Delegation to State agencies.

EPA's policy is to maximize the use of staff capabilities of State agencies. Therefore, in the implementation of the construction grant program, optimum use will be made of available State and Federal resources. This will eliminate unnecessary duplicative reviews of documents required in the processing of construction grant awards. Accordingly, the Regional Administrator may enter into a written agreement, where appropriate, with a State agency to authorize the State agency's certification of the technical or administrative adequacy of specifically required documents. The agreement may provide for the review and certification of elements of: (a) Facilities plans (step 1), (b) plans and specifications (step 2), (c) operation and maintenance manuals, and (d) such other elements as the Regional Administrator determines may be appropriately delegated as the program permits and State competence allows. The agreement will define requirements which the State will be expected to fulfill as part of its general responsibilities for the conduct of an effective preaward applicant assistance program; compensation for this program is the responsibility of the State. The agreement will also define specific duties regarding the review of identified documents prerequisite to the receipt of grant awards. A certification agreement must provide that an applicant or grantee may request review by the Regional Administrator of an adverse recommendation by a State agency. Delegation activities are compensable by EPA only under section 106 of the Act or subpart F of this part.

§ 35.915 State priority system and project priority list.

Construction grants will be awarded from allotments according to the State priority list, based on the approved State priority system. The State priority system and list must be designed to achieve optimum water quality management consistent with the goals and requirements of the Act.

(a) *State priority system.* The State priority system describes the methodology used to rate and rank projects that are considered eligible for assistance. It also sets forth the administrative, management, and public participation procedures required to develop and revise the State project priority list. In developing its annual priority list, the State must consider the construction grant needs and priorities set forth in certified and approved State and areawide water quality management (WQM) plans. The State shall hold a public hearing before submission of the priority system (or revision thereto). Before the hearing, a fact sheet describing the proposed system (including rating and ranking criteria) shall be distributed to the public. A summary of State responses to public comment and to any public hearing testimony shall be prepared and included in the priority system submission. The Regional Administrator shall review and approve the State priority system for procedural completeness, insuring that it is designed to obtain compliance with the enforceable requirements of the Act as defined in § 35.905. The Regional Administrator may exempt grants for training facilities under section 109(b)(1) of the Act and § 35.930-1(b) from these requirements.

(1) *Project rating criteria.* (i) The State priority system shall be based on the following criteria:

(A) The severity of the pollution problem;

(B) The existing population affected;

(C) The need for preservation of high quality waters; and

(D) At the State's option, the specific category of need that is addressed.

(ii) The State will have sole authority to determine the priority for each category of need. These categories comprise mutually exclusive classes of facilities and include:

(A) Category I—Secondary treatment;

(B) Category II—More stringent treatment;

(C) Category IIIA—Infiltration/inflow correction;

(D) Category IIIB—Sewer system replacement or major rehabilitation;

(E) Category IVA—New collectors and appurtenances;

(F) Category IVB—New interceptors and appurtenances; and

(G) Category V—Correction of combined sewer overflows.

(iii) Step 2, step 3 and step 2+3 projects utilizing processes and techniques meeting the innovative and alternative guidelines in appendix E of this part may receive higher priority. Also 100 percent grants for projects that modify or replace malfunctioning treatment works constructed with an 85 percent grant may receive a higher priority.

(iv) Other criteria, consistent with these, may be considered (including the special needs of small and rural communities). The State shall not consider the project area's development needs not related to pollution abatement, the geographical region within the State, or future population growth projections.

(2) *Criteria assessment.* The State shall have authority to determine the relative influence of the rating criteria used for assigning project priority. The criteria must be clearly delineated in the approved State priority system and applied consistently to all projects. A project on the priority list shall generally retain its priority rating until an award is made.

(b) *State needs inventory.* The State shall maintain a listing, including costs by category, of all needed treatment works. The most recent needs inventory, prepared in accordance with section 516(b)(1)(B) of the Act, should be used for this purpose. This State listing should be the same as the needs inventory and fulfills similar requirements in the State WQM planning process. The State project priority list shall be consistent with the needs inventory.

(c) *State project priority list.* The State shall prepare and submit annually a ranked priority listing of projects for which Federal assistance is expected during the 5-year planning period starting at the beginning of the next fiscal year. The list's fundable portion shall include those projects planned for award during the first year of the 5-year period (hereinafter called the funding year). The fundable portion shall not exceed the total funds expected to be available during the year less all applicable reserves provided in § 35.915-1 (a) through (d). The list's planning portion shall include all projects outside the fundable portion that may, under anticipated allotment levels, receive funding during the 5-year period. The Administrator shall provide annual guidance to the States outlining the funding assumptions and other criteria useful in developing the 5-year priority list.

(1) *Project priority list development.* The development of the project priority list shall be consistent with the rating criteria established in the approved priority system, in accordance with the criteria in paragraph (a)(1) of this section. In ranking projects, States must also consider the treatment works and step sequence; the allotment deadline; total funds available; and other management criteria in the approved State priority system. In developing its annual priority list, the State must consider the construction grant needs and priorities set forth in certified and approved State and areawide WQM plans. The Regional Administrator may request that a State provide justification for the rating or ranking established for specific project(s).

(2) *Project priority list information.* The project priority list shall include the information for each project that is set out below for projects on the fundable portion of the list. The Administrator shall issue specific guidance on these information requirements for the planning portion of the list, including phase-in procedures for the fiscal year 1979 priority planning process.

(i) State assigned EPA project number;

(ii) Legal name and address of applicant;

(iii) Short project name or description;

(iv) Priority rating and rank of each project, based on the approved priority system;

(v) Project step number (step 1, 2, 3, or 2+3);

(vi) Relevant needs authority/facility number(s);

(vii) NPDES number (as appropriate);

(viii) Parent project number (i.e., EPA project number for predecessor project);

(ix) For step 2, 3, or 2+3 projects, indication of alternative system for small community;

(x) For step 2, 3, or 2+3 projects, that portion (if any) of eligible cost to apply to alternative techniques;

(xi) For step 2, 3, or 2+3 projects, that portion (if any) of eligible cost to apply to innovative processes;

(xii) For step 3 or 2+3 projects, the eligible costs in categories IIIB, IV, and V (see § 35.915(a)(1)(ii));

(xiii) Total eligible cost;

(xiv) Date project is expected to be certified by State to EPA for funding;

(xv) Estimated EPA assistance (not including potential grant increase from the reserve in § 35.915-1(b)); and

(xvi) Indication that the project does or does not satisfy the enforceable requirements provision, including (as appropriate) funding estimates for those portions which do not meet the enforceable requirements of the Act.

(d) *Public participation.* Before the State submits its annual project priority list to the Regional Administrator, the State shall insure that adequate public participation (including a public hearing) has taken place as required by subpart G of this part. Before the public hearing, the State shall circulate information about the priority list including a description of each proposed project and a statement concerning whether or not it is necessary to meet the enforceable requirements of the Act. The information on the collector sewers normally with manholes, force mains, pumping and lift stations, and interceptors leading to a central treatment plant.

(5) *Alternative waste water treatment works.* A waste water conveyance and/or treatment system other than a conventional system. This includes small diameter pressure and vacuum sewers and small diameter gravity sewers carrying partially or fully treated waste water.

(b) A public body otherwise eligible for a grant under § 35.920-1 is eligible for a grant to construct privately owned treatment works serving one or more principal residences or small commercial establishments if the requirements of §§ 35.918-1, 35.918-2, and 35.918-3 are met.

(c) All individual systems qualify as alternative systems under § 35.908 and are eligible for the 4-percent set-aside (§ 35.915-1(e)) where cost-effective.

§ 35.918-1 Additional limitations on awards for individual systems.

In addition to those limitations set forth in § 35.925, the grant applicant shall:

(a) Certify that the principal residence or small commercial establishment was constructed before December 27, 1977, and inhabited or in use on or before that date;

(b) Demonstrate in the facility plan that the solution chosen is cost-effective and selected in accordance with the cost-effectiveness guidelines for the construction grants program (see appendix A to this subpart);

(c) Apply on behalf of a number of individual units located in the facility planning area;

(d) Certify that public ownership of such works is not feasible and list the reasons in support of such certification;

(e) Certify that such treatment works will be properly installed, operated, and maintained and that the public body will be responsible for such actions;

(f) Certify before the step 2 grant award that the project will be constructed and an operation and maintenance program established to meet local, State, and Federal requirements including those protecting present or potential underground potable water sources;

(g) Establish a system of user charges and industrial cost recovery in accordance with §§ 35.928 et seq., 35.929 et seq., 35.935-13, and 35.935-15;

(h) Obtain assurance (such as an easement or covenant running with the land), before the step 2 grant award, of unlimited access to each individual system at all reasonable times for such purposes as inspection, monitoring, construction, maintenance, operation, rehabilitation, and replacement. An option will satisfy this requirement if it can be exercised no later than the initiation of construction;

(i) Establish a comprehensive program for regulation and inspection of individual systems before EPA approval of the plans and specifications. Planning for this comprehensive program shall be completed as part of the facility plan. The program shall include as a minimum, periodic testing of water from existing potable water wells in the area. Where a substantial number of onsite systems exist, appropriate additional monitoring of the aquifer(s) shall be provided;

(j) Comply with all other applicable limitations and conditions which treatment works projects funded under this subpart must meet.

§ 35.918-2 Eligible and ineligible costs.

(a) Only the treatment and treatment residue disposal portions of toilets with composting tanks, oil-flush mechanisms or similar in-house systems are grant eligible.

(b) Acquisition of land in which the individual system treatment works are located is not grant eligible.

(c) Commodes, sinks, tubs, drains, and other wastewater generating fixtures and associated plumbing are not grant eligible. Modifications to homes or commercial establishments are also excluded from grant eligibility.

(d) Only reasonable costs of construction site restoration to preconstruction conditions are eligible. Costs of improvement or decoration associated with the installation of individual systems are not eligible.

(e) Conveyance pipes from wastewater generating fixtures to the treatment unit connection flange or joint are not eligible where the conveyance pipes are located on private property.

§ 35.918-3 Requirements for discharge of effluents.

Best practicable waste treatment criteria published by EPA under section 304(d)(2) of the Act shall be met for disposal of effluent on or into the soil from individual systems. Discharges to surface waters shall meet effluent discharge limitations for publicly owned treatment works.

§ 35.920 Grant application.

Grant applications will be submitted and evaluated in accordance with part 30 subpart B of this chapter.

§ 35.920-1 Eligibility.

Municipalities (see § 35.905), intermunicipal agencies, States, or interstate agencies are eligible for grant assistance.

§ 35.920-2 Procedure.

(a) Preapplication assistance, including, where appropriate, a preapplication conference, should be requested from the State agency or the appropriate EPA Regional Office for each project for which State priority has been determined. The State agency must receive an application for each proposed treatment works. The basic application shall meet the project requirements in § 35.920-3. Submissions required for subsequent related projects shall be in the form of amendments to the basic application. The grantee shall submit each application through the State agency. It must be complete (see § 35.920-3), and must relate to a project for which priority has been determined under § 35.915. If any information required by § 35.920-3 has been furnished with an earlier application, the applicant need only incorporate it by reference and, if necessary, revise such information using the previously approved application.

(b) Grant applications (and, for subsequent related projects, amendments to them) are considered received by EPA only when complete and upon official receipt of the State priority certification document (EPA form 5700-28) in the appropriate EPA Regional Office. In a State which has been delegated Federal application processing functions under § 35.912 or under subpart F of this part, applications are considered received by EPA on the date of State certification. Preliminary or partial submittals may be made; EPA may conduct preliminary processing of these submittals.

§ 35.920-3 Contents of application.

(a) *Step 1: Facilities plan and related step 1 elements.* An application for a grant for step 1 shall include:

(1) A plan of study presenting—

(i) The proposed planning area;

(ii) An identification of the entity or entities that will be conducting the planning;

(iii) The nature and scope of the proposed step 1 project and public participation program, including a schedule for the completion of specific tasks; and

(iv) An itemized description of the estimated costs for the project;

(2) Proposed subagreements, or an explanation of the intended method of awarding subagreements for performance of any substantial portion of the project work;

(3) Required comments or approvals of relevant State, local and Federal agencies, including clearinghouse requirements of Office of Management and Budget Circular A-95, as revised (see § 30.303 of this subchapter).

(b) *Step 2: Preparation of construction drawings and specifications.* Before the award of a grant or grant amendment for a step 2 project, the applicant must furnish the following:

(1) A facilities plan (including the environmental assessment portion in accordance with part 6 of this chapter) in accordance with §§ 35.917 through 35.917-9;

(2) Adequate information regarding availability of proposed site(s), if relevant;

(3) Proposed subagreements or an explanation of the intended method of awarding subagreements for performance of any substantial portion of the project work;

(4) Required comments or approvals of relevant State, local, and Federal agencies, including clearinghouse requirements of Office and Management and Budget Circular A-95, as revised (see § 30.305 of this subchapter);

(5) A value engineering (VE) commitment in compliance with § 35.926(a) for all step 2 grant applications for projects with a projected total step 3 grant eligible construction cost of $10 million or more excluding the cost for interceptor and collector sewers. For those projects requiring VE, the grantee may propose, subject to the Regional Administrator's approval, to exclude interceptor and collector sewers from the scope of the NE analysis;

(6) Proposed or executed (as determined appropriate by the Regional Administrator) intermunicipal agreements necessary for the construction and operation of the proposed treatment works, for any treatment works serving two or more municipalities;

(7) A schedule for initiation and completion of the project work (see § 35.935-9), including milestones; and

(8) Satisfactory evidence of compliance with:

(i) §§ 35.925-11, 35.929 et seq. and 35.935-13 regarding user charges;

(ii) §§ 35.925-11, 35.928 et seq. and 35.935-15, regarding industrial cost recovery, if applicable;

(iii) § 35.925-16, regarding costs allocable to Federal facilities, if applicable;

(iv) § 35.927-4 regarding a sewer use ordinance;

(v) § 30.405-2 and part 4 of this chapter, regarding compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, if applicable; and,

(vi) Other applicable Federal statutory and regulatory requirements (see subpart C of part 30 of this chapter).

(9) After June 30, 1980, for grantees subject to pretreatment requirements under § 35.907(b), the items required by § 35.907(d)(1), (d)(2), and (d)(4).

(c) *Step 3. Building and erection of a treatment works.* Prior to the award of a grant or grant amendment for a step 3 project, the applicant must furnish the following:

(1) Each of the items specified in paragraph (b) of this section (in compliance with paragraph (b)(6), the final intermunicipal agreements must be furnished);

(2) Construction drawings and specifications suitable for bidding purposes;

(3) A schedule for or evidence of compliance with §§ 35.925-10 and 35.935-12 concerning an operation and maintenance program, including a preliminary plan of operation; and

(4) After December 31, 1980, the items required by § 35.907(d)(1) through (d)(9), as applicable, for grantees subject to pretreatment requirements under § 35.907(b).

(d) *Step 2+3.* Combination design and construction of a treatment works. Before the award of a grant or grant amendment for a step 2+3 project, the grantee must furnish: (1) Each of the items specified in paragraph (b) of this section, and (2) a schedule for timely submission of plans and specifications, operation and maintenance manual, user charge and industrial cost recovery systems, sewer use ordinance, and a preliminary plan of operation.

(e) *Training facility project.* An application for grant assistance for construction and support of a training facility, facilities or training programs under section 109(b) of the Act shall include:

(1) A statement concerning the suitability of the treatment works facility, facilities or training programs for training operations and maintenance personnel for treatment works throughout one or more States;

(2) A written commitment from the State agency or agencies to carry out at such facility a program of training approved by the Regional Administrator;

(3) An engineering report (required only if a facility is to be constructed) including facility design data and cost estimates for design and construction;

(4) A detailed outline of the training programs, including (for 1-, 3-, and 5-year projections):

(i) An assessment of need for training.

(ii) How the need was determined,

(iii) Who would be trained,

(iv) What curriculum and materials would be used,

(v) What type of delivery system will be used to conduct training, (i.e., State vocational education system, State environmental agency, universities or private organizations),

(vi) What resources are available for the program,

(vii) A budget breakdown on the cost of the program, and

(viii) The relationship of the facility or programs to other training programs.

§ 35.925 Limitations on award.

Before awarding initial grant assistance for any project for a treatment works through a grant or grant amendment, the Regional Administrator shall determine that all of the applicable requirements of § 35.920-3 have been met. He shall also determine the following:

§ 35.925-1 Facilities planning.

That, if the award is for step 2, step 3, or step 2+3 grant assistance, the facilities planning requirements in § 35.917 et seq. have been met.

§ 35.925-2 Water quality management plans and agencies.

That the project is consistent with any applicable water quality management (WQM) plan approved under section 208 or section 303(e) of the Act; and that the applicant is the wastewater management agency designated in any WQM plan certified by the Governor and approved by the Regional Administrator.

§ 35.925-3 Priority determination.

That such works are entitled to priority in accordance with § 35.915, and that the award of grant assistance for the proposed project will not jeopardize the funding of any treatment works of higher priority.

§ 35.925-4 State allocation.

That the award of grant assistance for a particular project will not cause the total of all grant assistance which applicants within a State received, including grant increases, to exceed the total of all allotments and reallotments available to the State under § 35.910.

§ 35.925-5 Funding and other capabilities.

That the applicant has:

(a) Agreed to pay the non-Federal project costs, and

(b) The legal, institutional, managerial, and financial capability to insure adequate construction, operation, and maintenance of the treatment works throughout the applicant's jurisdiction. (Also see § 30.340-3 of this subchapter.)

§ 35.925-6 Permits.

That the applicant has, or has applied for, the permit or permits as required by the national pollutant discharge elimination system (NPDES) with respect to existing discharges affected by the proposed project.

§ 35.925-7 Design.

That the treatment works design will be (in the case of projects involving step 2) or has been (in the case of projects for step 3) based upon:

ered incorporated in the grant agreement.

§ 35.930-1 Types of projects.

(a) The Regional Administrator is authorized to award grant assistance for the following types of projects:

(1) *Step 1.* A facilities plan and related step 1 elements (see § 35.920-3(b)), if he determines that the applicant has submitted the items required under § 35.920-3(a);

(2) *Step 2.* Construction drawings and specifications, if he determines that the applicant has submitted the items required under § 35.920-3(b);

(3) *Step 3.* Building and erection of a treatment works, if he determines that the applicant has submitted the items required under § 35.920-3(c); or

(4) *Step 2 & 3.* A combination of design (step 2) and construction (step 3) for a treatment works (see § 35.909) if he determines that the applicant has submitted the items required under § 35.920-3(d).

(b) The Regional Administrator may award Federal assistance by a grant or grant amendment from any allotment or reallotment available to a State under § 35.910 et seq. for payment of 100 percent of the cost of construction of treatment works required to train and upgrade waste treatment works operations and maintenance personnel and for the costs of other operator training programs. Costs of other operator training programs are limited to mobile training units, classroom rental, specialized instructors, and instructional material, under section 109(b) of the Act.

(1) Where a grant is made to serve two or more States, the Administrator is authorized to make an additional grant for a supplemental facility in each State. The Federal funds awarded under section 109(b) to any State for all training facilities or programs shall not exceed $500,000.

(2) Any grantee who received a grant under section 109(b) before December 27, 1977, is eligible to have the grant increased by funds made available under the Act, not to exceed 100 percent of eligible costs.

§ 35.930-2 Grant amount.

The grant agreement shall set forth the amount of grant assistance. The grant amount may not exceed the amount of funds available from the State allotments and reallotments under § 35.910 et seq. Grant payments will be limited to the Federal share of allowable project costs incurred within the grant amount or any increases effected through grant amendments (see § 35.955).

§ 35.930-3 Grant term.

The grant agreement shall establish the period within which the project must be completed, in accordance with § 30.345-1 of this chapter. This time period is subject to extension for excusable delay, at the discretion of the Regional Administrator.

§ 35.930-4 Project scope.

The grant agreement must define the scope of the project for which Federal assistance is awarded under the grant. The project scope must include a step or an identified segment. Grant assistance may be awarded for a segment of step 3 treatment works construction, when that segment in and of itself does not provide for achievement of applicable effluent discharge limitations, if:

(a) The segment is to be a component of an operable treatment works which will achieve the applicable effluent discharge limitations; and

(b) A commitment for completion of the entire treatment works is submitted to the Regional Administrator and that commitment is reflected in a special condition in the grant agreement.

§ 35.930-5 Federal share.

(a) *General.* The grant shall be 75 percent of the estimated total cost of construction that the Regional Administrator approves in the grant agreement, except as otherwise provided in paragraphs (b) and (c) of this section and in §§ 35.925-15, 35.925-16, 35.925-17, 35.930-1(b), and paragraph 10 of appendix A.

(b) *Innovative and alternative technology.* In accordance with § 35.908(b), the amount of any step 2, step 3, or step 2+3 grant assistance awarded from funds allotted for fiscal years 1979, 1980, and 1981 shall be 85 percent of the estimated cost of construction for those eligible treatment works or significant portions of them that the Regional Administrator determines meet the criteria for innovative or alternative technology in appendix E. These grants depend on the availability of funds from the reserve under § 35.915-1(b). The proportional State contribution to the non-Federal share of construction costs for 85-percent grants must be the same as or greater than the proportional State contribution (if any) to the non-Federal share of eligible construction costs for all treatment works which receive 75-percent grants in the State.

(c) *Modification and replacement of innovative and alternative projects.* In accordance with § 35.908(c) and procedures published by EPA, the Regional Administrator may award grant assistance to fund 100 percent of the eligible costs of the modification or replacement of any treatment works constructed with grant assistance based upon a Federal share of 85 percent under paragraph (b) of this section.

§ 35.930-6 Limitation on Federal share.

The grantee must exert its best efforts to perform the project work as specified in the grant agreement within the approved cost ceiling. If at any time the grantee believes that the costs which it expects to incur in the performance of the project will exceed or be substantially less than the previously approved estimated total project costs, the grantee must notify the Regional Administrator and the State agency promptly in writing. As soon as practicable, the grantee must give the revised estimate of total cost for the performance of the project (see § 30.900 of this subchapter). Delay in submission of the notice and excess cost information may prejudice approval of an increase in the grant amount. The United States shall not be obligated to pay for costs incurred in excess of the approved grant amount or any amendment to it until the State has approved an increase in the grant amount from available allotments under § 35.915 and the Regional Administrator has issued a written grant amendment under § 35.955.

§ 35.935 Grant conditions.

In addition to the EPA general grant conditions (subpart C and appendix A to part 30 of this subchapter), each treatment works grant shall be subject to the following conditions:

§ 35.935-1 Grantee responsibilities.

(a) Review or approval of project plans and specifications by or for EPA is for administrative purposes only and does not relieve the grantee of its responsibility to design, construct, operate, and maintain the treatment works described in the grant application and agreement.

(b) By its acceptance of the grant, the grantee agrees to complete the treatment works in accordance with the facilities plan, plans and specifications, and related grant documents approved by the Regional Administrator, and to maintain and operate the treatment works to meet the enforceable requirements of the Act for the design life of the treatment works. The Regional Administrator is authorized to seek specific enforcement or recovery of funds from the grantee, or to take other appropriate action (see § 35.965), if he determines that the grantee has failed to make good faith efforts to meet its obligations under the grant.

(c) The grantee agrees to pay, pursuant to section 204(a)(4) of the Act, the non-Federal costs of treatment works construction associated with the project and commits itself to complete the construction of the operable treatment works and complete waste treatment system (see definitions in § 35.905) of which the project is a part.

the grantee has submitted adequate evidence of timely development of its system of industrial cost recovery nor shall the Regional Administrator pay more than 80 percent of the Federal share unless he has approved the system.

(2) Payments of grantees held under paragraph (a)(1) of this section shall be released after April 25, 1978. However, the grantee shall obtain approval of its industrial cost recovery system by June 30, 1979, or no further payments will be made until the system is approved.

(b) *Step 3 grant assistance awarded after April 24, 1978, but before July 1, 1979.* The grantee must obtain approval of its industrial cost recovery system under these regulations, except for the ordinance and rates, before July 1, 1979. The Regional Administrator shall not make any payments on these grants and shall not award any new step 3 grants to the same grantee after June 30, 1979, if the industrial cost recovery system, except for the ordinance and rates, has not been approved. The grantee shall enact the ordinance required under § 35.928-1(h) and submit the ordinance and industrial cost recovery system rates to the Regional Administrator who must approve the ordinance before the treatment works are placed in operation.

(c) *Step 3 grant assistance awarded after June 30, 1979.* The grantee must obtain the Regional Administrator's approval of the industrial cost recovery system under these regulations, except for the ordinance and rates, before grant award. The grantee shall enact the ordinance required under § 35.928-1(h) and submit the ordinance and industrial cost recovery system rates to the Regional Administrator who must approve the ordinance before the treatment works are placed in operation.

§ 35.935-16 Sewer use ordinance and evaluation/rehabilitation program.

(a) The grantee must obtain the approval of the Regional Administrator of its sewer use ordinance under § 35.927-4.

(b) Except as provided in paragraphs (c) and (d) of this section, the Regional Administrator shall not pay more than 80 percent of the Federal share of any step 3 project unless he has approved the grantee's sewer use ordinance, and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

(c) In projects where segmenting of an operable treatment works has occurred, the Regional Administrator shall not pay more than 80 percent of the Federal share of the total of all interdependent step 3 segments unless he has approved the grantee's sewer use ordinance and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

(d) In mulitple facility projects where an element or elements of the treatment works are operable components and have been completely constructed and placed in operation by the grantee, the Regional Administrator shall not make any additional step 3 payment unless he has approved the grantee's sewer use ordinance and the grantee is complying with the sewer system evaluation and rehabilitation schedule incorporated in the grant agreement under § 35.927-5.

§ 35.935-17 Training facility.

If assistance has been provided for the construction of a treatment works required to train and upgrade waste treatment personnel under §§ 35.930-1(b) and 35.920-3(e), the grantee must operate the treatment works as a training facility for a period of at least 10 years after construction is completed.

§ 35.935-18 Value engineering.

A grantee must comply with the applicable value engineering requirements of § 35.926.

§ 35.935-19 Municipal pretreatment program.

The grantee must obtain approval by the Regional Administrator of the municipal pretreatment program in accordance with part 403 of this chapter. Prior to granting such approval, the Regional Administrator shall not pay more than 90 percent of the Federal share of any step 3 project or cost of step 3 work under a step 2+3 project awarded after October 1, 1978, except that for any such grant assistance awarded before December 31, 1980, the Regional Administrator may continue grant payments if he determines that significant progress has been made (and is likely to continue) toward the development of an approvable pretreatment program and that withholding of grant payments would not be in the best interest of protecting the environment.

§ 35.935-20 Innovative processes and techniques.

If the grantee receives 85-percent grant assistance for innovative processes and techniques, the following conditions apply during the 5-year period following completion of construction:

(a) The grantee shall permit EPA personnel and EPA designated contractors to visit and inspect the treatment works at any reasonable time in order to review the operation of the innovative processes or techniques.

(b) If the Regional Administrator requests, the grantee will provide EPA with a brief written report on the construction, operation, and costs of operation of the innovative processes or techniques.

§ 35.936 Procurement.

(a) §§ 35.936 through 35.939 set forth policies and minimum standards for procurement of architectural or engineering services as defined in § 35.937 and construction contracts as described in § 35.938 by grantees under all steps of grants for construction of treatment works. Acquisition of real property shall be conducted in accordance with part 4 subpart F of this chapter. Other procurements of goods and services shall be conducted in accordance with the provisions of part 33 of this subchapter.

(b) This subpart does not apply to work beyond the scope of the project for which grant assistance is awarded (i.e., ineligible work).

§ 35.936-1 Definitions.

As used in §§ 35.936 through 35.939, the following words and terms shall have the meaning set forth below. All terms not defined herein shall have the meaning given to them in § 30.135 of this subchapter, and in § 35.905.

(a) *Grant agreement.* The written agreement and amendments thereto between EPA and a grantee in which the terms and conditions governing the grant are stated and agreed to by both parties under § 30.345 of this subchapter.

(b) *Subagreement.* A written agreement between an EPA grantee and another party (other than another public agency) and any tier of agreement thereunder for the furnishing of services, supplies, or equipment necessary to complete the project for which a grant was awarded, including contracts and subcontracts for personal and professional services, agreements with consultants and purchase orders, but excluding employment agreements subject to State or local personnel systems. (See §§ 35.937-12 and 35.938-9 regarding subcontracts of any tier under prime contracts, for architectural or engineering services or construction awarded by the grantee—generally applicable only to subcontracts in excess of $10,000.)

(c) *Contractor.* A party to whom a subagreement is awarded.

(d) *Grantee.* Any municipality which has been awarded a grant for construction of a treatment works under this subpart. In addition, where appropriate in §§ 35.936 through 35.939, grantee may also refer to an applicant for a grant.

APPENDIX B

NETA-SwRI 109(b) QUESTIONNAIRE

Facility____

Name of Respondent________________________________

SwRI/NETA/EPA 109(b) Assessment Questionnaire[1]

1. Pre-Application and Application

A. Became aware of 109(b) facility funds through

____U.S. EPA

____Regional EPA

____State Governmental Agency

____Local Governmental Agency

____Academic Institution

____Professional Association

____Colleague

____Other (specify)____________________

B. Preliminary contacts were made with

____U.S. EPA

____Regional EPA

____State Governmental Agency

____Local Governmental Agency

____Academic Institution

____Professional Association

____Advisory Committee (describe membership)

____

____

C. Need for 109(b) facility was determined by

____General experience and knowledge of state's needs

____Formal survey instrument

____Advisory committee (describe membership and type of input)______________

____

____*Informal survey (explain how conducted and sources of information)

____

____

____

____*Other (explain)____

____

____

D. The decision to initiate the application process was made

____1. Independent of outside agencies, organizations, or committees

---

[1] Elements marked with * are intended to be discussed with SwRI personnel during on-site visit.

____2. By informal discussion with

____Local Agency
____State Agency
____Federal Agency
____Other (specify)________
____
____

____Advisory Committee (describe membership)
____
____

____3.* By formal procedures in cooperation with (describe methodology and those involved)________________________________
____
____

E. 1. If a need survey questionnaire or other means of determining need was used, please indicate types of information sought:

a.
b.
c.
d.
e.
f.
g.
h.
i.
j.
k.
l.
m.
n.
o.
p.

2. Survey questionnaire developed by________________________________
3. Survey administered by________________________________
4. Survey data evaluated by________________________________
5. Are need assessments continued for program maintenance?______ If so, please indicate frequency and methodology. Use items in Section E-1 for data elements used in assessments.________________________________
____
____
____
6. Please provide a copy of initial questionnaire, and any existing documents used to update your knowledge of needs.

F. List other agencies, institutions, etc. in the state that were considered potential 109(b) applicants.________________________________
____
____

*G. Briefly describe how State's 109(b) applicant was selected and identify those primarily responsible for the decision.______________________________

*H. If possible, describe state and local legal, institutional, legislative and political constraints affecting the final selection of the applicant.______________________________

I. 1. Criteria for 109(b) site selection were developed by______________________________
   2. Final decision of 109(b) site made by______________________________

*J. List agencies, associations, etc. that cooperated or provided input into the pre-application process.______________________________

*K. Describe the delays, difficulties, or conflicts encountered in the pre-application process. For example, were there extended delays in coordinating planning between Federal and State agencies? Were there problems in securing information necessary for preparation of the application?______________________________

II. Mission, Goals, Objectives

A. Briefly state mission and overall goals of your 109(b) training facility.______________________________

B. The training facility is associated with

____Vocational technical school.
____Community college
____4-year college
____State agency
____Training committee
____Professional associations
____Other (specify)______________________
____

Specific title of affiliated institution:______________________________
____
____

C. Functions of Training Facility

1. Functions or Activities Within Realm of Training Facility	2. Planned (Yes or No)	3. Accomplished by (Year)	4. Expect to Achieve by (Year)	5. Reasons Expectations not Realized
a) 2-yr. associate degree				
b) 1-yr. technical certificate				
c) Pre-service training				
d) Inservice training				
e) On-site training				
f) Research				
g) Development of training materials				
h) Dissemination of training materials				
i) Instructor Development				
j) Other (specify)				

D. Facility Users

Personnel	Pre-Service Training Number					In-Service Training Number				
	1979	1978	1977	1976	1975	1979	1978	1977	1976	1975
1. Wastewater										
Environmental Systems Operators (ESO)										
Trainers (T)										
Regulatory Personnel (RP) Consultants (C)										
2. Water Supply										
ESO										
T										
RP										
C										
3. Solid Waste										
ESO										
T										
RP										
C										
4. Air Pollution										
ESO										
T										
RP										
C										
5. Solid Waste										
ESO										
T										
RP										
C										
6. Radiation										
ESO										
T										
RP										
C										

Personnel	Pre-Service Training Number					In-Service Training Number				
	1979	1978	1977	1976	1975	1979	1978	1977	1976	1975
7. Hazardous Materials										
ESO										
T										
RP										
C										
8. Laboratory										
ESO										
T										
RP										
C										
9. Design										
ESO										
T										
RP										
C										
10. Operations										
ESO										
T										
RP										
C										
11. Field Survey										
ESO										
T										
RP										
C										
12. Other Fields not Listed										
ESO										
T										
RP										
C										

III. Physical Plant

A. Facilities

1. Number of classrooms_____; total area (sq.ft.)_______seating capacity_______
2. Number of rental classrooms or other arrangements_____________;
   total area (sq.ft.)___________
3. Number of laboratories_____; area (sq.ft.)_______number of students accommodated_________
4. Number of mobile units________; types_________________________________
   sizes____
5. Pilot wastewater treatment plant?_____ On site?_____ Nearby? (please locate)______________________________ Size (g/day)________
   a. Processes in pilot plant
      ____Trickling filter
      ____Activated sludge
      ____Post secondary
      ____Advanced work
      ____Other or modifications_______________________________
6. Full scale wastewater treatment plant?______ Size (g/day)________________
   a. Processes in plant
      ____Trickling filter
      ____Activated sludge
      ____Post secondary
      ____Advanced waste
      ____Other or modifications_______________________________
7. Learning Resource Center?______ Size (sq.ft.)______________; historical use (no./yr)________________; (documents/yr)_____________
   a. Center includes
      ____Printed material
      ____Audio-visuals
      ____Student work centers
8. Telecommunications capabilities?_________ Audio________ Visual_________
   ____Receiving capabilities
   ____Transmitting capabilities
   ____Studio facilities
9. Number of staff offices__________ Area (sq.ft.)_______________

10. Number of satellite offices________; total area (sq.ft.)__________________

11. Is there a Central Resource Warehouse where learning materials, loaners, etc. are made available to those who request them?_______

12. Other____

B. Describe equipment, special features, life expectancy, and estimated cost of each facility.

	Description	Normal Equipment	Special Features	Life Expectancy	Absolute Cost/Unit	Annual Operating Cost
1. Classrooms						
2. Laboratories						
3. Mobile Units						
4. Pilot Treatment Plant						
5. Full-Scale Treatment Plant						
6. Learning Resource Center						
7. Telecommunication Facility						
8. Offices						
9. Other						

C. Capital Costs

	Projected	Actual
1. Construction	$________(year)_____	$________(year)_____
2. Equipment	$________(year)_____	$________(year)_____

3. Please explain any differences in projected and actual costs.________________

____

____

4. If possible, provide copies of the capital budget for your facility (please include all years of operation).

D. Operating Costs (Total Facility)

	1979	1978	1977	1976	1975
1. Administrative Personnel					
2. Teaching Personnel					
3. Fringe Benefits					
4. Utilities					
5. Maintenance					
6. Travel					
7. Material & Supplies					
8. Consultants					
9. Other					

Copies of annual operating budgets for your facility would suffice here, if available.

E. Funding Sources

	1979	1978	1977	1976	1975
1. Annual Operating budget					
2. Annual income					
a) Tuition					
b) Other sources					

3. Grants and Contracts (please list for life of facility)

Funding Source	Project Title or Description	Amount	Grant Period

V. Program Administration, Management

A. Staff

1. Total full time_______, number degreed_______.

2. Total part time_______, number degreed_______.

3.	# Full Time	# Part Time	Education	# Personnel Additions	When?
a. Director/ Chairperson					
b. Ass't Director/ Chairperson					
c. Adm. Assistant					
d. Coordinators					
e. Advisor					
f. Instructor					
g. Lab Director					
h. Lab Assistant					
i. Maintenance					
j. Clerical					
k. Other					

B. Staff Responsibilities - Percent Time in Each Area

1.	Adminis-tration	Instruction	Training Material Development	Program Planning	Recruit-ment	Other
a. Director/ Chairperson						
b. Ass't Director						
c. Adm. Assistant						
d. Coordinator						
e. Advisor						
f. Instructor						
g. Lab Director						
h. Lab Assistant						
i. Maintenance						
j. Clerical						

C. Instruction - Percent of Total Available Instruction Time in Each Area (if this has changed substantially through the years, please indicate)

1. Program	% of Total Instruction
a. Wastewater	__________
b. Water Supply	__________
c. Solid Waste	__________
d. Air Pollution	__________
e. Noise Pollution	__________
f. Radiation	__________
g. Hazardous Materials	__________
h. Laboratory	__________
(types)__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
i. Other__________	__________

VI. Training Program Implementation

A. Enrollment

1. Annual enrollment_____ 2. No. part time_____ 3. No. full time_____

4. Total number of students in each program per year.

	1979	1978	1977	1976	1975
a. Wastewater					
b. Water Supply					
c. Solid Waste					
d. Air Pollution					
e. Noise Pollution					
f. Radiation					
g. Hazardous Materials					
h. Laboratory (area)					
i. Other (please identify)					

5. How do enrollment figures compare with State's training needs?

____

____

*B. Define ongoing needs assessment methodologies for program maintenance (i.e., certification, plant performance, identification of training and nontraining related problems, etc.)

*C. Discuss curriculum, including revisions, decisionmaking process for updating/upgrading, means of evaluating delivery/learning, etc. For example, are standardized lesson plans utilized; are classes oriented to certification exams?

C. Training Programs

Training Programs Offered or Planned for Personnel in:	Planned (Yes/No)	Accomplished by (Year)	Expect to Achieve by (Year)	Reason Expectation Not Realized
a. Wastewater Treatment				
b. Water Supply				
c. Solid Waste				
d. Air Pollution				
e. Noise Pollution				
f. Radiation				
g. Hazardous Materials				
h. Laboratory				
(area)				
i. Other (specify)				

*D. Describe the attempts of your facility to provide the training units required/ desired by your state/local autorities, licensing entities.

*E. Describe coordination activities within your state designed to insure the compatibility of your program with the statewide objectives.

F. Would you please provide the name, address, and place of employment of five of your graduates.

	Name	Address	Place of Employment	Position	Title (if applicable)
1.					
2.					
3.					
4.					
5.					

G. Alternate Delivery Mechanisms

	Planned	Accomplished	Briefly Describe	Reasons plans Not Realized
Degree Programs				
Short Schools				
Seminars/Workshops				
Training Institutes				
Remote Instruction				

*H. Program Evaluation

Methodologies Used

Plant Performance

Retention and Application of Training Information

Attrition Rates

Placement

*I. Recruiting/Marketing

Methodologies Used

- Visitations to high schools
- Open house
- Newsletters
- Alumni groups
- Lectures to educational institutions, civic groups, professional associations, community leaders, industry groups, etc.

*VII. On-Going Planning Process

Formal structure for on-going planning

- Joint Training Coordinating Committee
- Advisory Committee
- Other________________________________

*VIII. Special Problems

SwRI personnel will be particularly interested in discussing the following:

Special problems encountered in meeting goals
Psychological effect of facility on community
Community support of program
Problems in application process
Suggestions for facilitating application process
History of the facility
Special problems or needs as you see them
Your perception of facility success
Things which you would approach or do differently
Your view of NTOTC, and other EPA entities

Please provide the following if available

Floor plans and specs of facilities
Equipment inventories
Documentation of training needs
Organizational chart

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APPENDIX C

DESCRIPTION OF CALIFORNIA AND ILLINOIS STATEWIDE TRAINING CENTERS AND PROGRAMS

NON-109(b) STATEWIDE TRAINING CENTERS

CALIFORNIA

The State of California supports a wastewater operator training program which is presented by the Water Quality Control Institute (WQCI) established at San Marcos, California (see maps, Figures C-1 and C-2). The Water Quality Control Institute was started in 1971 by the State Water Resources Control Board (SWRCB), an arm of the Division of Water Quality. The SWRCB has established nine regional water quality control boards in the state (see map, Figure C-3). These nine regional offices are based in drainage basins within the state and monitor the NPDES permits, thus acting as an enforcement arm.

In 1971, California made wastewater operator certification mandatory with the state acquiring a certification program with five grade levels with mandatory certification. The need for a competent state wastewater training program was satisfied by the establishment of the WQCI.

The WQCI, sometimes called the San Marcos Training Center, employs a director, one staff, one secretary and utilizes two instructors supplied by Palomar College on a full-time basis. In late 1979, it was anticipated that two additional full-time staff would soon be employed.

Instruction in the California program occurs both at the Center in San Marcos, and at field locations throughout the state. These courses taught around the state are known as WW-20 courses and they are the same course that is offered at San Marcos. Table C-1 shows a synopsis of the numbers of students taught by the Center in 1979, and a tabulation of total trainees from 1972 through 1979. There are 45 locations around the state where classes have been taught. Classes are scheduled and advertised one year in advance and enrollment averages about 10 per class, with as many as 12 and as few as six being trained in some instances.

Table C-2 shows the ongoing functions of the Water Quality Control Institute. As of January 1980, the WQCI had one classroom at the San Marcos location. Seating exists for 25-30 trainees. Instructors have unlimited use of Palomar College facilities on an "as needed" basis. Two laboratories of 150 and 300 square feet, respectively, accommodate 8-12 students each. In addition, WQCI maintains two mobile units - a 26' motor home type, and a 40' "fifth wheel" trailer. Five staff offices are maintained at the San Marcos facility, along with a reception area.

Adjacent to the facility is a 250,000 gallon per day activated sludge with aerobic digestion and chlorination wastewater treatment plant which

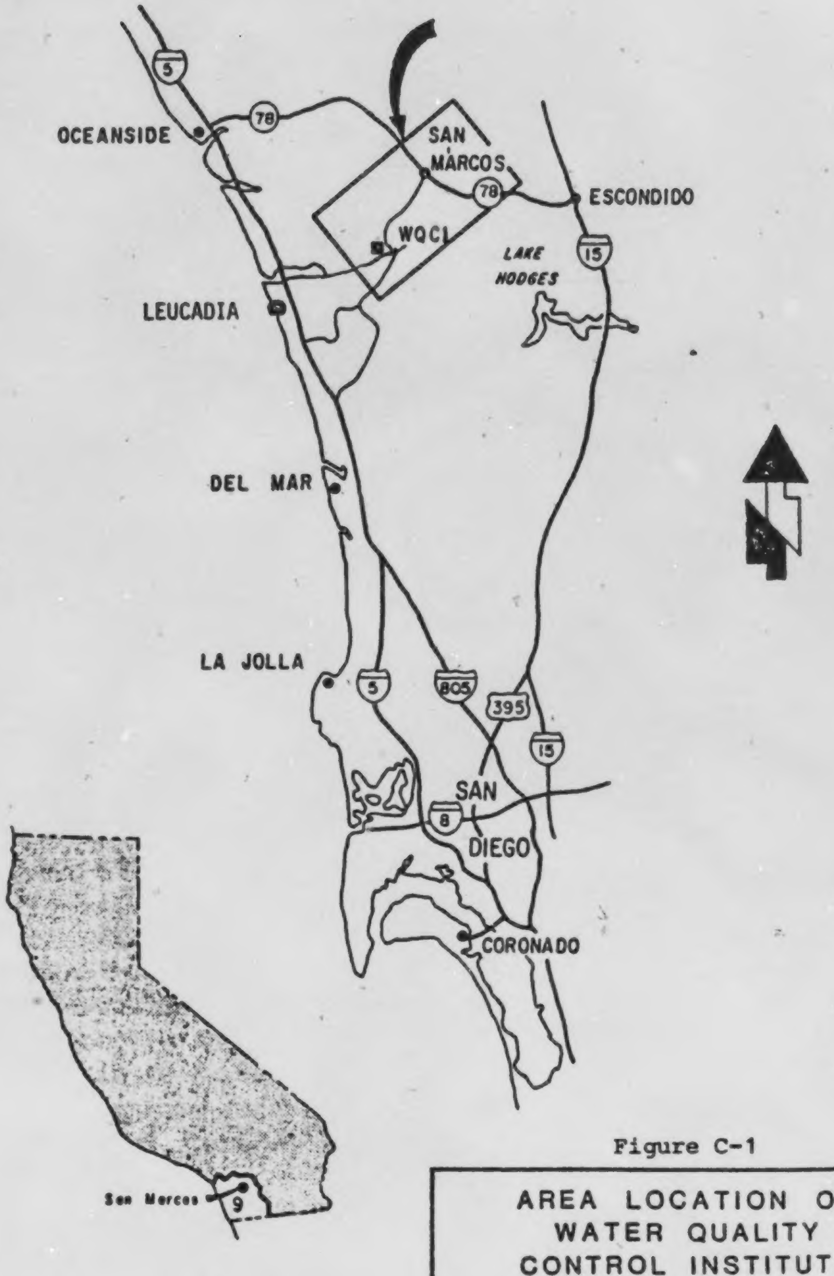

5
78
OCEANSIDE
SAN MARCOS
78
ESCONDIDO
WQCI
LAKE HODGES
15
LEUCADIA
DEL MAR
LA JOLLA
5
805
395
15
SAN
8
DIEGO
CORONADO
San Marcos
9
0 1 2 3 4 5 6 7 8 mi.
SCALE of MILES

Figure C-1

AREA LOCATION OF
WATER QUALITY
CONTROL INSTITUTE

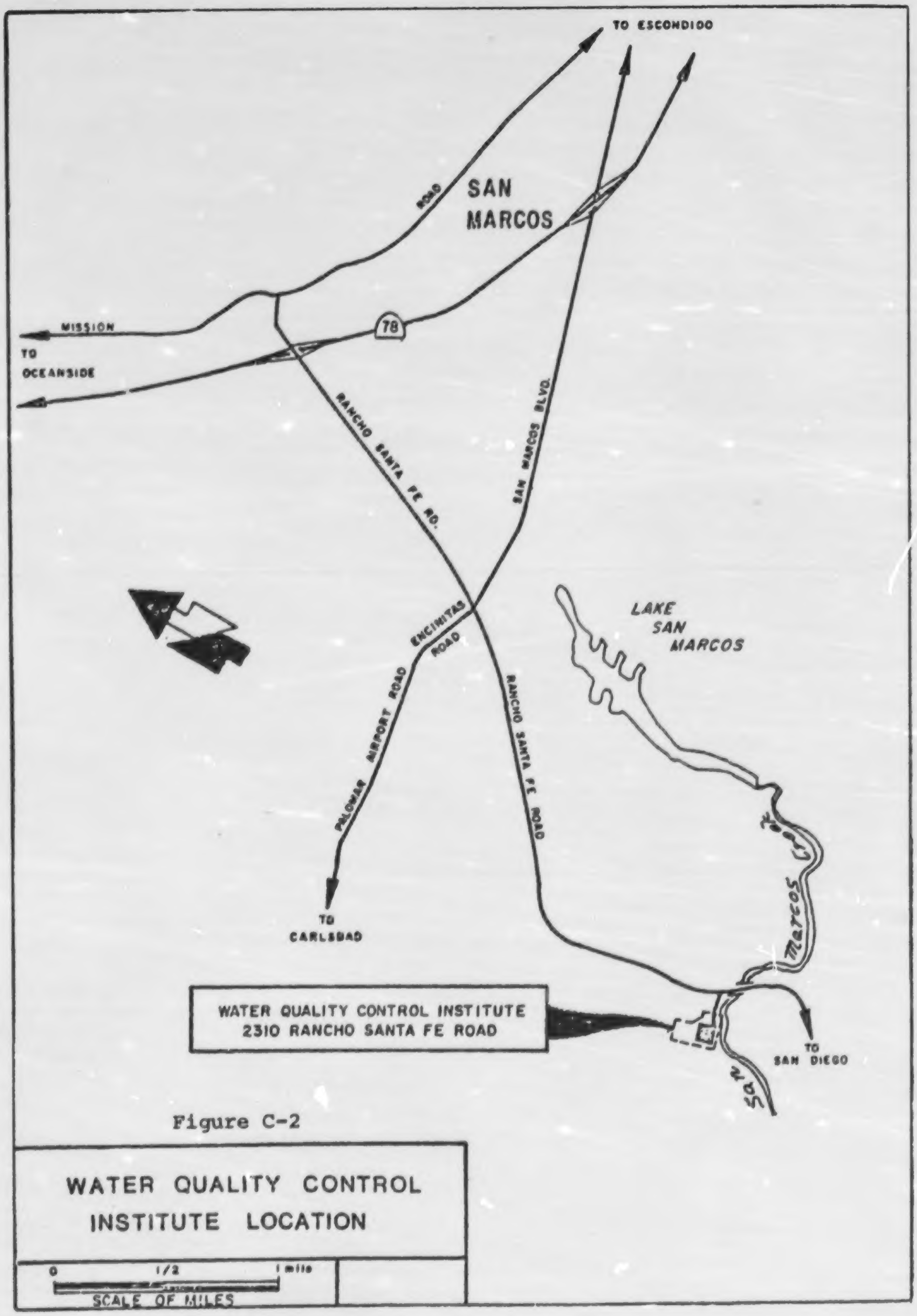

TO ESCONDIDO
ROAD
SAN MARCOS
MISSION
TO OCEANSIDE
78
RANCHO SANTA FE RD.
SAN MARCOS BLVD.
ENCINITAS ROAD
PALOMAR AIRPORT ROAD
RANCHO SANTA FE ROAD
LAKE SAN MARCOS
San Marcos Cr
TO CARLSBAD
WATER QUALITY CONTROL INSTITUTE
2310 RANCHO SANTA FE ROAD
TO SAN DIEGO
0
1/2
1 mile
SCALE OF MILES

Figure C-2

WATER QUALITY CONTROL INSTITUTE LOCATION

STATE WATER RESOURCES CONTROL BOARD

P. O. Box 100, Sacramento, CA 95801

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

NORTH COAST REGION (1)
1000 Coddingtown Center
Santa Rosa, California 95401
(707) 545-2620

SAN FRANCISCO BAY REGION (2)
1111 Jackson Street, Room 6040
Oakland, California 94607
(415) 464-1255

CENTRAL COAST REGION (3)
1102-A Laurel Lane
San Luis Obispo, California 93401
(805) 549-3147

LOS ANGELES REGION (4)
107 South Broadway, Room 4027
Los Angeles, California 90012
(213) 620-4460

CENTRAL VALLEY REGION (5)
3201 S Street
Sacramento, California 95816
(916) 445-0270

Fresno Branch Office
3374 East Shields Avenue
Fresno, California 93726
(209) 488-5116

Redding Branch Office
100 E. Cypress Avenue
Redding, CA 96001
(916) 442-6376

LAHONTAN REGION (6)
2092 Lake Tahoe Boulevard
P. O. Box 14367
South Lake Tahoe, California 95702
(916) 544-3481

Victorville Branch Office
15371 Bonanza Road
Victorville, California 92392
(714) 245-6585

COLORADO RIVER BASIN REGION (7)
73-271 Highway 111, Suite 21
Palm Desert, California 92260
(714) 346-7491

SANTA ANA REGION (8)
6809 Indiana Avenue
Riverside, California 92506
(714) 684-9330

SAN DIEGO REGION (9)
6154 Mission Gorge Road, Suite 205
San Diego, California 92120
(714) -5114
265-

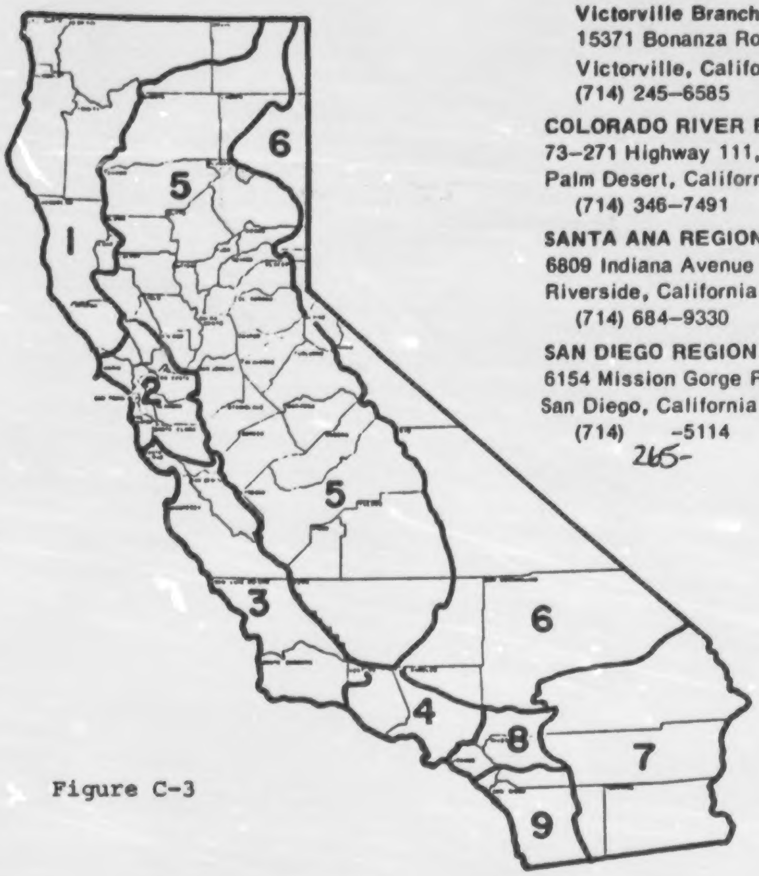


Figure C-3

TABLE C-1

TRAINING OUTPUT FOR WATER QUALITY CONTROL INSTITUTE
CALENDAR YEAR 1979

Month	Classes Scheduled	Classes Conducted	Trainee-Days Scheduled	Trainee-Days Nonscheduled
Jan.	4	4	220	--
Feb.	4	4	407	94
March	6	6	380	298
April	4	3	155	--
May	5	4	193	--
June	6	4	212	51
July	3	2	115	--
Aug.	4	3	205	24
Sept.	5	5	238	102
Oct.	4	3	147	--
Nov.	4	2	93	--
Dec.	2	2	330	--
TOTALS	51	42	2,695	569
			3,264	

	Trainees	Trainee-Days	Classes
Home Courses	386	1,552	24
WL-4 (Mobile Lab)	101	489	10
WW-20 (Mobile Wastewater Tech.)	141	705	8
Short Schools	271	518	4
TOTALS	899	3,264	46

TABLE C-1 (Continued)

WQCI TRAINING OUTPUT BY FISCAL YEAR

Fiscal Year	Instructional Staff	Courses	Trainees	Trainee-Days
1972-73	2	29	664	1,268
1973-74	3	38	519	2,221
1974-75	3	33	531	1,950
1975-76	3	40	594	2,424
1976-77	3	36	521	2,174
1977-78	4	38	621	2,315
1978-79	3.5	46	762	2,848
July-Dec. 1979	2.5	19	325	1,254

TABLE C-2

FUNCTIONS OF CALIFORNIA WATER QUALITY CONTROL INSTITUTE

Functions or Activities Within Realm of Training Facility	Accomplished by (Year)	Expect to Achieve by (Year)
2-yr. Associate Degree	~1973 (Palomar College)	
1-yr. Technical Certificate	-	
Pre-Service Training	1972	
In-Service Training	1972	
On-Site Training	1972	
Research		1980's
Development of Training Materials	Continual	
Dissemination of Training Materials	Continual	
Instructor Development	Continual	

was donated by the county to the WQCI. Unfortunately, in early 1980 the county decided to reacquire the facility in order to accommodate rapidly expanding population in the area, and the WQCI no longer has jurisdiction over or use of the plant.

The WQCI has acquired a video recorder and television monitor along with a camera. The camera and recorder will be used to tape pertinent local interest courses or segments. Tapes prepared elsewhere can be delivered to the trainees via the same system. Classroom courses presented at WQCI are designed for intensive learning and cover most topics in the wastewater field. Thorough classroom discussions, coordinated with field trips to local facilities, give students practical knowledge with which to improve on-the-job performance.

The off-site program taught at 45 locations around the state offers the same basic course content. Utilizing mobile units as travelling laboratories, the classes are generally taught in the conference or class room of local wastewater treatment plants. Samples of influent, effluent, and through-flow are obtained from the plant and are used to demonstrate necessary skills to the trainees. Instructors tour the host facility with the trainees, pointing out positive and/or negative features. In addition, safety practices in plant operation, laboratory techniques, and sample acquisition can be readily demonstrated. Education credit is given for each class, and CEU's awarded now will be equated to educational credit in the near future

The operating costs for 1979 for the WQCI are shown in Table C-3. The annual operating budget is $100,000 exclusive of the salaries paid by Palomar College to the two instructors who are affiliated there.

TABLE C-3. 1979 OPERATING COSTS (Total Facility)

Administrative Personnel	25k
Teaching Personnel	20k
Fringe Benefits	15k
Utilities	5k
Maintenance	3k
Travel and Per Diem	12k
Material and Supplies	5k
Consultants	15k
Other	55k*

*Provided as salaries to two instructors from Palomar College.

The U.S. EPA has provided the three following grants to the WQCI: (1) 1971-1972, Training grant, $270,000; (2) 1972, Mobile Lab 1, $20,000; and (3) 1977-78, Mobile Lab 2, $50,000. The WQCI acquires additional funds from tuition charged to the trainees. Prior to 1980, the charge was $10/day, but beginning in 1980 the charge was raised to $20/day. It is estimated that the tuition covers 25-40% of the total cost of presenting a class. The remaining funding needs are subsidized from general state funds.

Twice each year, an Advisory Committee meets to discuss items of interest to the WQCI and to water quality personnel in general. The emphasis of discussion centers on the status and effectiveness of operator training, and a review of guidelines and regulations for the classification of wastewater treatment plants and operator certification. The recommendations of the AC have an impact on the operation of the Institute as efforts are made by WQCI to follow the AC's wishes. The Advisory Committee is composed of representatives from the following:

California Association of Sanitation Agencies	- 2
League of Cities	- 1
County government	- 1
Union	- 1
Consulting engineer	- 1
Educational community	- 1
Operators (1 from No. Calif., 1 from So. Calif.)	- 2
	9

The WQCI does not spend a great deal of time in the recruitment process. The Institute regularly mails out information on itself, quarterly fliers, and notes of special interest. The Director writes a column entitled "Back to School" in the California Water Pollution Control Association Bulletin. When feasible, lectures are given by the staff to interested audiences, generally within 50 miles radius of San Marcos.

ILLINOIS

The Illinois statewide training center is not a 109(b) center but its existence is partially the result of 109(b) funding availability. In 1967 the Illinois State Legislature passed legislation that directed Southern Illinois University to establish a Wastewater Operator Training Institute. SIU-Edwardsville incorporated two classrooms into the wastewater treatment plant designed to serve the University. SIU-Edwardsville began offering operator training programs in 1968. Due to the 109(b) legislation of 1972, interest in utilizing the funds was generated in Illinois; in 1973, Illinois EPA opted not to apply for 109(b) funds but rather to build a totally state-funded training center. The legislation to build the Illinois center was passed by the Legislature in 1975, and the center facilities were occupied in 1976.

The University system in the early 1970's had legitimate functions in the vocational training, certificate, and two-year degree type of programs. However, by 1976 the Illinois Board of Higher Education had revised policies such that Universities would no longer offer vocational training, certificate or two-year programs, and that such programs would be the responsibility of the public community colleges. The result was that Illinois then had a two million dollar, 28,000 sq. ft. facility with 12,000 feet of classrooms, and other laboratories, which was intended to provide entry level and advanced certificate occupational training programs which have proven difficult to support through the higher education budgetary process.

The ERTC structure, built for a cost of about $1.7 million and equipped at an additional $700,000 cost, has over twenty thousand feet of floor space. There are three classrooms, three laboratories, a television studio, an auditorium, seven staff offices, a laboratory preparation area, a mechanical room, a student lounge, office storage, laboratory storage, classroom preparation and reproduction area, a learning resource center, and an enclosed pilot wastewater treatment plant in the facility (see Figure C-4, ERTC Building Plan).

Special equipment in use at the ERTC is shown in Table C-4, along with some information on each listed item.

In 1980 there are about thirty community colleges offering wastewater operator training courses in Illinois. The Edwardsville facility is providing coordination, materials, and functional support to the colleges.

The Edwardsville facility is located 280 miles from Chicago, a 6-7 hour drive from the major population center in the state. Thus, the Center conducts about 75% of its program in an outreach mode with many training activities scheduled in the Chicago area.

The Edwardsville Center is able to recover about 25% of its cost of operation on training deliverv. The major portion of operating costs are supported through grant and contract activities supplemented by a small continuing allocation from University resources. The priorities at the Center are as follows: (1) provide personnel resources to community college programs an on "as needed" basis; (2) provide outreach direct training activities; (3) provide on site continuing education programs at the Center; and (4) provide training materials and curriculum support to community colleges. The Center administers several self-study correspondence programs. The Center provides instructional services to approximately 1200 operators each year with about 75% of operator contacts being through outreach programs conducted at sites throughout the state.

Illinois employs both pre-test and post-test processes to evaluate their program effectiveness. Students are asked to evaluate both course design and instructor effectiveness. Certain easy-answer, check-off type questions are asked along with questions that require a written response in order to maintain student interest and response integrity.

The Illinois facility attempts to monitor the success of its students on certificate examinations after the students complete a certificate preparation/review course. The facility staff elicit feedback from the Illinois environmental agency so that both positive and negative attributes can be identified.

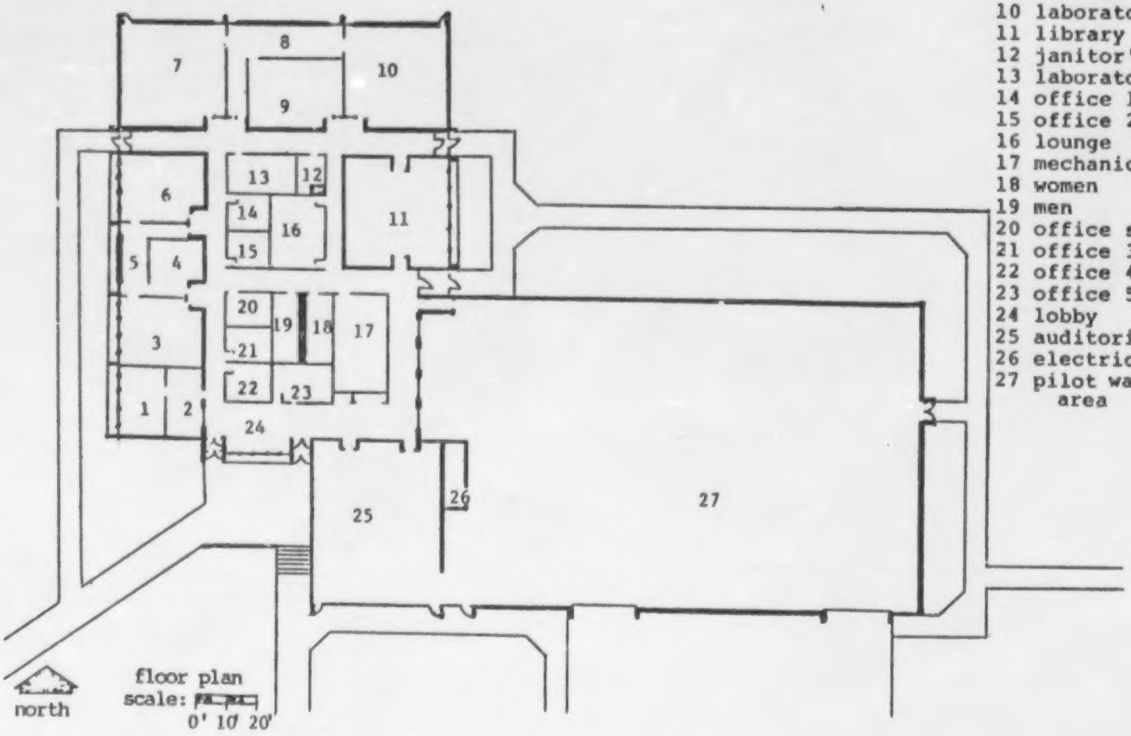
Enrollment numbers are concluded to be a valid indicator of whether a student need is being served or not. If a student re-enrolls at the facility for more classes, this is interpreted as an indication that the student felt positively toward the facility and its offerings.

The staff of the Illinois center take a two to three day retreat each year for introspection/self evaluation. A written critique of the past year and a plan for specific program improvement activities are the output of the evaluation retreat.

The Environmental Resources Training Center (ERTC) in Illinois utilizes the Advisory Committee concept of internal cooperation. Three wastewater operators, three water supply operators, three university representatives and an Illinois EPA representative serve on the committee. The committee acts in a general review and consultation mode to the ERTC.

The initial needs determinations for the facility were conducted utilizing formal surveys prepared by the Illinois EPA, informal surveys of the program participants, and the collective input of the Advisory Committee members. Ongoing determination of need is accomplished by annual survey of about 100 persons familiar with the state's water and wastewater personnel, facility performance and training needs. The normal survey presents a "shopping list" of possible training programs and requests that respondents prioritize the list for their respective geographic region.

1 directors office
2 secretary & waiting
3 class room 3
4 reproduction room
5 class room prep
6 class room 1
7 laboratory 1
8 laboratory prep
9 laboratory 2
10 laboratory 3
11 library (Learning Resources Center)
12 janitor's room
13 laboratory storage
14 office 1
15 office 2
16 lounge
17 mechanical room
18 women
19 men
20 office storage
21 office 3
22 office 4
23 office 5
24 lobby
25 auditorium
26 electrical room
27 pilot wastewater plant area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27
north
floor plan
scale:
0' 10' 20'

Environmental Resources Training Center
Southern Illinois University - Edwardsville, Illinois
Clark, Dietz and Associates-Engineers, Inc., Urbana, Illinois

Figure C-4. ERTC building plan.

TABLE C-4. SPECIAL EQUIPMENT AT ERTC

	Description	Normal Equipment	Special Features	Life Expectancy	Absolute Cost/Unit	Annual Operating Cost
Classrooms	2 each - 20 student 1 each - 99 student	Overhead and slide projectors, TV monitor, TV tape deck, 16mm sound projector, super 8 sound	99 seat auditorium	-	-	-
Laboratories	2 ea - 20 station wet lab 1 ea - 10 station instrument lab	All standard methods wet chemistry and bacteriology	Distilled and deionized water	-	-	-
Mobile Units	28' Motor Van Laboratory	Lab space for 3 persons; electric generator, BOD incubator, distilled water, etc.		-	-	75¢/mile plus staffing
Pilot Treatment Plant	See attached specifications		Total process flexibility	-	500,000	Unknown
Full-Scale Treatment Plant	300,000 gal/day activated sludge w/effluent filters 5 anaerobic digesters		Chemical addition for phosphorous removal	-	-	120,000
Learning Resource Center		Storage shelves, 3 student/AV carrels		-	-	-
Telecommunication Facility	Color video recording - graphics capability - Super 8 film		Portable color video capability	-	-	-
Offices	2 offices - Director Suite 5 individual offices					
Other		Interactive computer terminal	Online access, interactive simulation			

The ERTC at SIU-Edwardsville has been established with the following objectives: (1) director training to environmental control facility operators, (2) coordinate and support state community colleges, (3) develop training materials, (4) conduct instructor development programs, (5) be a state repository of training support materials, and (6) conduct applied research in water/wastewater facility O&M and training. Table C-5 illustrates the functions of the ERTC.

Figure C-5 shows the organizational structure of the ERTC. In early 1980 there were seven full-time and eight part-time staff employed. The operating costs for the ERTC are shown in Table C-6. In addition to the income sources shown in Table C-7, there was additional income generated through grant funded research and training activities as shown in Table C-8. Enrollment figures at the Illinois ERTC are shown in Table C-9 for fiscal years 1977 to 1980. The training programs and delivery mechanisms used to educate the students are shown in Tables C-10 and C-11.

TABLE C-5. FUNCTIONS OF TRAINING FACILITY

Functions or Activities Within Realm of Training Facility	Planned (Yes or No)	Accomplished by (Year)	Expect to Achieve by (Year)	Reasons Expectations not Realized
2-yr. associate degree	YES		1981	Must be cooperative program through community college*
1-yr. technical certificate	YES		1981	Resource limitations $ and people
Pre-service training	YES		1981	See a and b
Inservice training	YES	1977		
On-site training	YES	1977		
Research	YES	1977		
Development of training materials	YES	1977		
Dissemination of training materials	YES	1978		
Instructor Development	YES	1978		
Other (specify)				

* Illinois Board of Higher Education (IBHE) policy is for all occupational programs and 2-year associate programs to be conducted by community colleges. Four-year institutions are precluded from conduct of such programs. IBHE does not honor funding requests for occupational programs at four-year institutions. Therefore, ERTC/SIUE must develop articulated programs in occupational areas with the community college system.

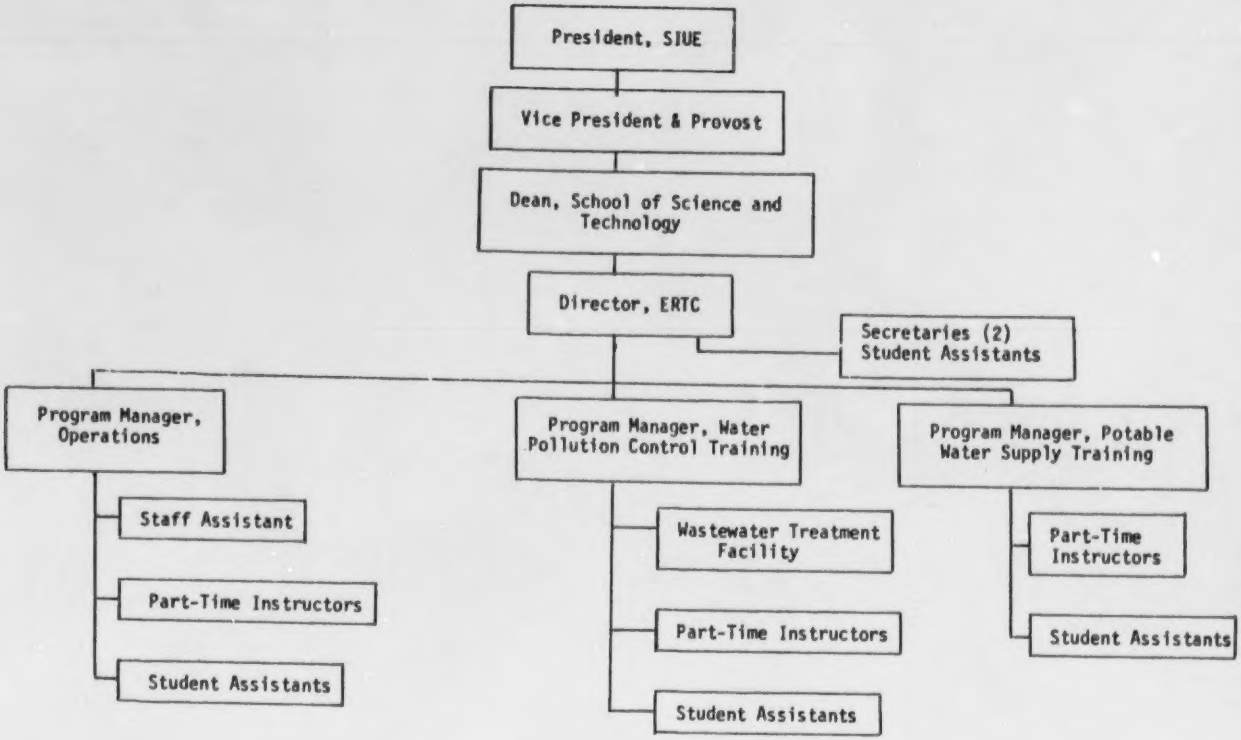
President, SIUE
Vice President & Provost
Dean, School of Science and Technology
Director, ERTC
Secretaries (2)
Student Assistants
Program Manager, Operations
Program Manager, Water Pollution Control Training
Program Manager, Potable Water Supply Training
Staff Assistant
Part-Time Instructors
Student Assistants
Wastewater Treatment Facility
Part-Time Instructors
Student Assistants
Part-Time Instructors
Student Assistants

Figure C-5. ERTC organizational structure.

TABLE C-6. OPERATING COSTS

(Excludes Wastewater Treatment Plant Operations)

	FY80	FY79	FY78	FY77	FY76
Administrative Personnel	$54,900	$49,244	$40,409	$36,000	-
Teaching Personnel	86,370	76,740	41,757	27,000	-
Fringe Benefits	21,487	19,642	14,650	7,735	-
Utilities (Estimated - part of total University Physical Plant budget)	(50,000)	(50,000)	(40,000)	(30,000)	-
Travel	11,563	17,550*	10,322	8,186	-
Material and Supplies	15,147	39,000	30,200	30,518	-
Consultants	5,000	8,000	6,000	12,000	-
Other	34,140	39,038	24,251	19,561	-

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*Includes travel expenses for participants at meetings conducted at ERTC.

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TABLE C-7. FUNDING SOURCES

	FY80	FY79	FY78	FY77	FY76
Annual Operating Budget*	$25,000	$25,000	$25,000	$25,000	-
Annual Income					
Tuition	34,000	42,824	29,540	4,593	
Other Sources	169,598	182,390	113,049	111,407	

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*Excludes utilities, building maintenance and wastewater treatment plant operations. Also excludes 54% S&W University indirect costs.

TABLE C-8. GRANTS AND CONTRACTS**

Funding Source	Project Title or Description	Amount	Grant Period
USEPA	Effluent Monitoring Training	22,447.00	1975-1976
USEPA	Region V Training Workshop	9,968.00	2/28/77-9/30/77
USEPA	Troubleshooting O & M Problems	23,531.00	10/1/76-2/28/77
IEPA	ERTC Start-Up	75,000.00	1975-1976
USEPA	Water Supply Operating Procedures	8,443.00	7/76-3/30/77
IEPA	IEPA/ERTC Instructor Workshop	8,149.50	2/1/77-3/15/77
USEPA	Staff Guides Development	21,520.00	7/1/77-6/30/78
IDEQ*	Training Module Development	12,484.00	1/1/78-6/30/78
IDEQ	Instructional Module Development	1,993.00	5/15/77-9/30/77
IEPA	Training/Curriculum Development	90,000.00	10/1/79-9/30/80
IOE/DAVTE	Wastewater Treatment Plant Operators Program Development	20,000.00	10/78 -6/30/80
Univ of Wisconsin	ETN Implementation	3,296.00	1/1/79-6/30/79
IEPA	Training Materials Evaluation& Develop.	80,000.00	9/1/77-6/30/78
USEPA	Training-Troubleshooting O & M Problems	4,112.00	3/31/79-8/31/79
~~IOE/DAVTE~~	Potable Water Supply Operator Training	26,497.00	9/5/78-6/30/79
IEPA	Environmental Control Training Develop.	60,000.00	1/1/77-12/31/77
IEPA	Illinois Wastewater Operator Training	45,550.00	1/1/79-6/30/79
USEPA	Maintenance Procedures	31.412.00	10/1/78-9/30/80

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*Iowa Department of Environmental Quality

**Direct costs only. 54% University indirect costs not included.

TABLE C-9. ENROLLMENT

	FY80**	FY79	FY78***	FY77
Wastewater	148	327	391	151
Water Supply	67	313	49	
Laboratory (water wastewater)	31	121	319	57
Instructor Development			24	

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*ERTC provides only in-services upgrade training.
**July 1, 1979-December 31, 1979 only.
***Majority of programs were one-day seminars.

TABLE C-10. TRAINING PROGRAMS

Training Programs Offered or Planned for Personnel in:	Planned (Yes/No)	Accomplished by (Year)	Expect to Achieve by (Year)	Reason Expectation Not Realized
Wastewater Treatment	YES	1977		
Water Supply	YES	1977		
Solid Waste	YES		1983	Staff and dollar resources
Air Pollution	YES		1983	Staff and dollar resources
Noise Pollution	YES		1985	Staff and dollar resources, unknown need
Radiation	NO			
Hazardous Materials	YES		1982	Staff and dollar resources
Laboratory	YES	1977		
(area)				
Other (specify)				
Correspondence Courses	YES	1978		

TABLE C-11. DELIVERY MECHANISMS

	Planned	Accomplished	Briefly Describe	Reasons plans Not Realized
Degree Programs	NO			Not responsibility of ERTC
Short Schools	YES	1977	ERTC conducts about 75 percent of all instruction at off-campus sites	
Seminars/Workshops	YES	1977		
Training Institutes	YES	1977		
Remote Instruction	YES	1979	Telephone network tested in 1979	Unit cost for delivery high - not known whether this could be cost recovery event

APPENDIX D

CONTACT PERSONS AT EXISTING 109(b) FACILITIES AND OTHER SELECTED STATEWIDE TRAINING CENTERS

LIST OF PERSONS TO CONTACT REGARDING 109(b) STATEWIDE TRAINING CENTERS

Location	Name	Contact	Phone	109(b) Funding to Date	109(b) Funds Requested
ARKANSAS, Camden SAUTB P.O. Box 3048 East Camden, AR 71701	Southern Arkansas University Technical Branch; Operator Training Center	Dr. Clyde Hamer	501/574-0741	$250,000	$250,000
COLORADO, Denver Community College of Denver 1600 Downing Street Denver, CO 80218	Community College of Denver	Ms. JoElen Zgut	303/839-3497	$500,000	
FLORIDA, Gainesville The University of Florida TREEO Center 3900 S.W. 63rd Blvd. Gainesville, FL 32601	TREEO Center	Mr. Billy Blair	904/392-2464	$250,000	
GEORGIA, Carrollton Georgia Water and Wastewater Institute West Georgia College Carrollton, GA 30117	Georgia Water and Wastewater Institute	Mr. Jim Bennett	404/834-1468	$500,000	
IOWA, Cedar Rapids Wastewater Treatment Plant Operator Training Center Kirkwood Community College P.O. Box 2068 Cedar Rapids, IA 52406	Waste and Wastewater Technology, Environmental Occupations Education Department	Mr. Phillip R. Koundakjian	319/398-5677	$250,000	$250,000
MISSOURI, Neosho Water and Wastewater Technical School P.O. Drawer 370 Neosho, MO 64850	Water and Wastewater Technical School	Dr. Ronald F. Layton	417/451-2786	$250,000	$250,000
NEW HAMPSHIRE, Concord P.O. Box 95 Concord, NH 03301	New Hampshire Water Supply and Pollution Control Commission	Mr. Gordon Page	603/271-3503	$ 30,000	$370,000
NEW JERSEY, New Brunswick Wastewater Treatment Plant Operator Training Center Dept. of Environmental Science Cook College Rutgers University New Brunswick, NJ 08903	Pilot Plant Training Center	Dr. John Cirello	201/932-9860		$500,000

LIST OF PERSONS TO CONTACT REGARDING 109(b) STATEWIDE TRAINING CENTERS (Continued)

Location	Name	Contact	Phone	109(b) Funding to Date	109(b) Funds Requested
*NEW MEXICO, Las Cruces Dona Ana Co. Occupational Education Branch New Mexico State Univ. P.O. Box 3DA Las Cruces, NM 88003	Dona Ana County Occupational Education	Mr. Max Summerlot	505/646-2730	$250,000	$250,000?
OKLAHOMA, Midwest City Oscar Rose Junior College 6420 Southeast 15th Midwest City, OK 73110	Environmental Studies Department	Dr. Karl Brandes	405/733-7450	$250,000	$250,000
*UTAH, Provo Div. of Environmental Health P.O. Box 2500 Salt Lake City, UT 84110	Wastewater Treatment Program	Mr. Steven Moehlmann	801/533-6146	$ 250,000	$500,000
VIRGINIA, Richmond P.O. Box 11143 Richmond, VA 23230	Operator Training Center	Mr. John (Jack) Vanderland	804/264-3315	$250,000	
*WASHINGTON, Auburn The Washington State Water/Wastewater Training Green River Community College 12401 S.E. 320th St. Auburn, WA 98002	Wastewater Training Program	Mr. Fred Delvecchio	206/833-9111 Ext. 369	$ 20,000	$500,000
WASHINGTON, D.C. 5000 Overlook Ave. SW Department of Environmental Science Bureau of Wastewater Treatment Washington, DC 20032	Department of Environmental Services	Mr. Charles R. Martin	202/727-5757	$249,000	

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*Not visited.

OTHER STATES WHICH HAVE REQUESTED 109(b) FUNDS AND WHICH WERE VISITED

Location	Name	Contact	Phone	109(b) Funding to Date	109(b) Funds Requested
NEW ENGLAND REGIONAL South portland, Maine NEWWI Southern Maine Technical College 2 Fort Road Portland, ME 04106	New England Regional Wastewater Institute	Mr. Kirk Laflin	207/799-7303		$500,000
VERMONT, Montpelier Environmental Engineering Division Agency of Environmental Services State Office Building Montpelier, VT 05602	Agency of Environmental Affairs	Mr. Sandy Fyles	802/828-3345		$145,000

OTHER STATEWIDE TRAINING CENTERS ON WHICH INFORMATION WAS GATHERED

Location	Name	Contact	Phone	109(b) Funding to Date	109(b) Funds Requested
California, San Marcos Water Quality Control Institute 2310 Rancho Santa Fe Road San Marcos, CA 92069	Water Quality Control Institute	Mr. Chuck Weir	714/744-4150	None	
ILLINOIS, Edwardsville Environmental Resources Training Center Campus Box 75 Southern Illinois University Edwardsville, IL 62026	Environmental Resources Center	Dr. James O. Bryant	618/692-2030	None	
*TEXAS, Bryan Water Utilities Training F.E. Drawer K College Station, TX 77843	Water and Wastewater Training Division	Mr. Leon Holbert	713/799-3080 Ext. 246	None	

OTHER STATEWIDE TRAINING PROGRAMS ON WHICH INFORMATION WAS GATHERED

Location	Name	Contact	Phone	109(b) Funding to Date	109(b) Funds Requested
*INDIANA, Gary NETA 1440 E. 35th Ave. Gary, IN 46409		Mr. George Kinias	219/465-1744	None	

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*Not visited.